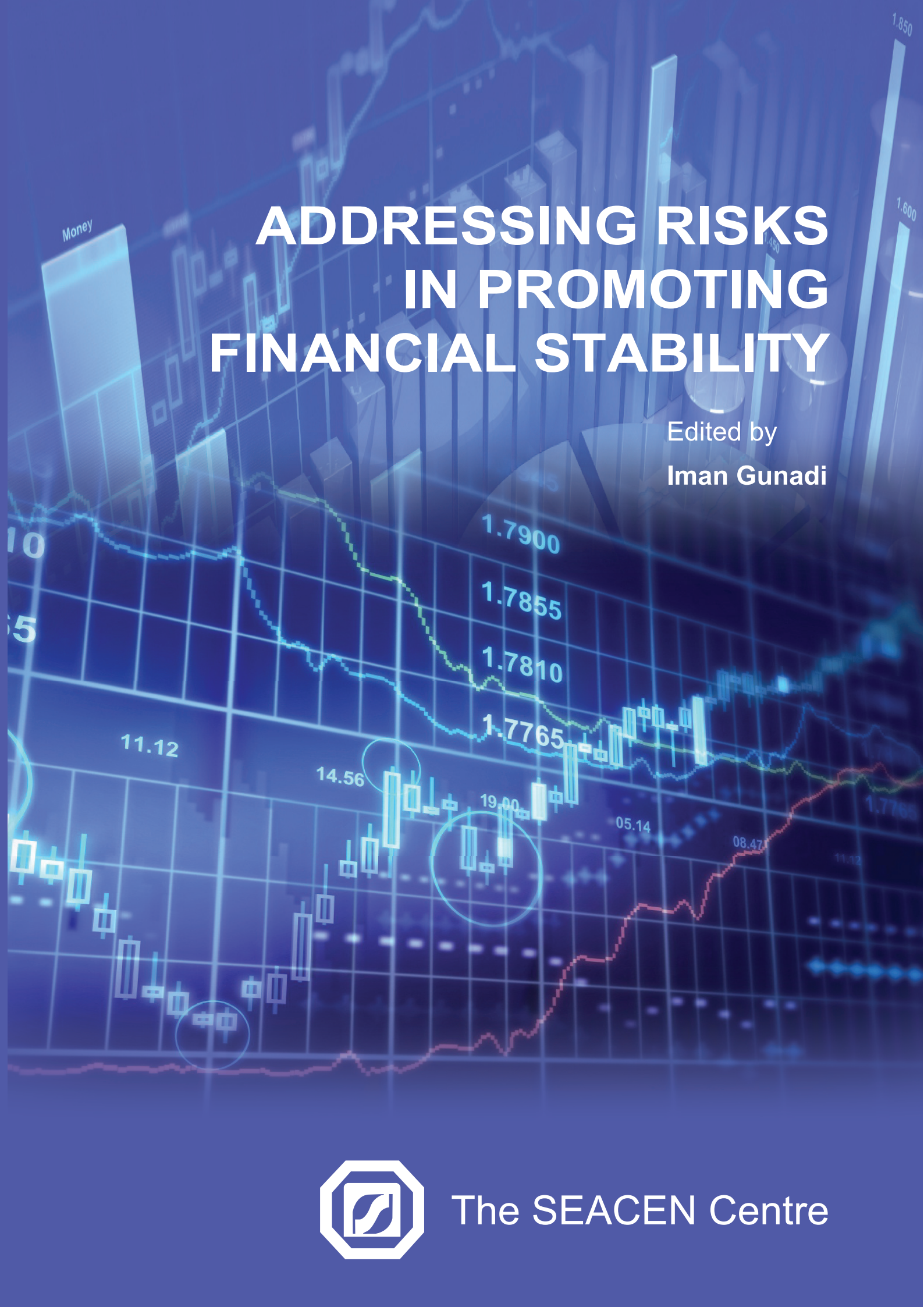


ADDRESSING RISKS IN PROMOTING FINANCIAL STABILITY

Edited by

Iman Gunadi

The SEACEN Centre

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The South East Asian Central Banks (SEACEN)
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by Iman Gunadi

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FOREWORD

It is cannot be denied that every event comes with invaluable lessons, even the bitter ones. Therefore, there are many lessons to garner from financial crises especially on ways to improve our efforts to avoid another crisis. The level of financial globalisation and development underscore the importance of macro- and micro-prudential tools necessary to mitigate systemic risks on both dimensions. More importantly, the depth and breadth of the recent global financial crisis provided fresh impetus for policymakers to rethink and to introduce new approaches to the existing frameworks for financial stability. Given the varying degrees of financial system infrastructure, and levels of financial development among SEACEN economies, the availability of diverse sets of macro and micro-prudential indicators is indeed vital.

This study provides a survey on how the SEACEN economies promote their financial system stability. The survey is important to examine their efforts to prevent a crisis and to look at their readiness to emerge from a crisis. In this regard, it is essential to look at how they conduct macroprudential surveillance and what kind of tools and indicators they use in their financial systems. In particular, identifying and investigating all the tools and indicators used by SEACEN member economies will help this region to identify the sources of vulnerabilities in order to improve their capabilities in promoting financial system stability.

This collaborative research was led by Dr. Iman Gunadi, Visiting Research Economist at The SEACEN Centre who is currently a Senior Researcher at the Financial System Stability Bureau, Directorate of Banking Research and Regulation at Bank Indonesia. It was participated by 10 project team members of 9 SEACEN member central banks. The SEACEN Centre wishes to express its sincere gratitude to Dr. Gunadi for his efforts as the Project Leader, the participating member central banks and their project team members for actively participating in this project and preparing their respective project papers. The project team members are namely Mr. Seng Youraden from the National Bank of Cambodia; Ms. Elis Deriantino of Bank Indonesia; Ms. Jocelyn Lee Kah Seen of Bank Negara Malaysia; Mr. Dipak Raj Lamichhane of Nepal Rastra Bank; Ms. Maria Merzenaida D. Donovan of Bangko Sentral ng Pilipinas; Mr.

H.P.G.S. Ratnasiri of Central Bank of Sri Lanka; Mr. Tzong-Ding Wu of Central Bank, Chinese Taipei and last but not least, Mr. Le Trung Kien and Mr. Bui Van Hai of State Bank of Vietnam. The assistance of staff members of the Research and Learning Contents Department of The SEACEN Centre is also gratefully acknowledged. We would also like to gratefully acknowledge the helpful comments and suggestions on the project's first workshop received from Dr. Wimboh Santoso, Director of Directorate of Banking Research and Regulation, Bank Indonesia and on the integrative report from Prof. Kwek Kian Teng of University Malaya, Kuala Lumpur Malaysia.

The views expressed in this study, however, are those of the authors and do not necessarily reflect those of The SEACEN Centre or the SEACEN member central banks/monetary authorities.

Dr. A. G. Karunasena
Executive Director
The SEACEN Centre
Kuala Lumpur

September 2011

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EXECUTIVE SUMMARY

Global financial crises have demonstrated that monetary policy is not the only approach for stabilisation and robust microprudential regulation and supervision are not sufficient to mitigate risks to financial system stability. These lessons imply that policymakers, especially financial authorities including the central bank, have to continually focus on strengthening financial system stability. Although all out efforts to avoid a crisis will not assure zero financial crisis in the future, the preparation for crisis prevention and resolution are absolute necessities. The central bank should be accountable for implementing procedures for maintaining and promoting financial system stability.

Macroprudential surveillance and microprudential supervision for financial system stability are very difficult tasks and require collaboration among authorities, not only within the economy but also among countries. Given the variances in financial system infrastructures and levels of financial development among SEACEN economies, the availability of diverse sets of macro and micro-prudential indicators is indeed vital. This study provides a survey of how the SEACEN economies promote financial system stability. It assesses the policies, tools and indicators that are available to financial authorities in SEACEN economies and provides suggestions for their improvement. The nine participating economies provide an analysis of their current situations and macroprudential approaches for financial system stability strengthening. Their efforts in maintaining financial system stability and resilience are commendable. However, having said that, many improvements can still be made due to the continuous innovation and development of the financial system.

The prevailing challenges faced by the authorities suggest that the survey on the financial system stability framework should be carried out regularly to assess the development of the financial system and the commitment of financial system regulators in SEACEN economies. Due to the importance of promoting financial system stability, this study strongly recommends that regional organisations such as The SEACEN Centre facilitate regular meetings as a part of financial system stability collaboration. The meetings should be targeted at every level of central bank management to align perceptions, exchange ideas, share experiences and needs, and to collaborate in strengthening central bank macroprudential surveillance and to develop macroprudential tools and indicators, etc.

This study could become a base research for those who wish to collaborate in the improvement of tools and indicators in the participating SEACEN economies. Collaboration in this context would be a good effort for promoting and strengthening financial system stability as well as for averting future systemic financial system distress which may arise in the SEACEN and other regional economies.

Chapter 1

ADDRESSING RISKS IN PROMOTING FINANCIAL SYSTEM STABILITY IN SEACEN ECONOMIES: A SURVEY

By
Iman Gunadi[1]

1. Introduction

1.1. Background

The recent global financial crisis gave invaluable lessons on how monetary and banking policies affect the financial system and at the same time, how agents in the system react to these policies. Although these policies, in general, were intended to increase economic welfare and to protect economic agents, there were always opportunities for some players in the system to gain higher profits by taking higher risks. Due to the increasingly integrated financial system globally, these risks spread easily from one market to another and from one simple instrument to very complicated instruments. Consequently, risks in one market could have close correlations to risks in the other markets. In this regard, policymakers have to monitor financial systems rigorously, not only in the home economy but also in other economies, in order to prevent and mitigate future crises.

In an increasingly integrated financial system, banks are getting bigger and some have many branches in other economies. This unavoidable situation presents more complications for banking supervision as well as in terms of the spreading of risks. In addition, non-bank financial institutions and firms are also undergoing the same trends. The rapid development in technology amplifies the hurdles for financial system authorities in many economies for the supervision and regulation of financial institutions and markets. Furthermore, conducting macroprudential surveillances and enhancing microprudential supervision to promote financial system stability are very difficult tasks and require collaboration among authorities, not only within the economy but also among regional economies.

---

1. The author is currently a Senior Researcher for the Financial System Stability Bureau, Directorate of Banking Research and Regulation of Bank Indonesia. He was a Visiting Research Economist at The SEACEN Centre in Operating Year 2010/11.

Caruana (2010) argues that the global financial crisis provided insight into the role of central banks can and should play in promoting financial system stability. Furthermore, he claims that a clearly articulated strategy for promoting financial system stability and transparency about actions and decision making process will help to promote accountability. Accordingly, the level of financial globalisation and development underscore the importance of macro- and micro-prudential tools necessary to mitigate systemic risks on both dimensions. More importantly, the depth and breadth of the recent global financial crisis provided fresh impetus for policymakers to rethink and introduce new approaches to the existing frameworks for financial system stability, especially for the SEACEN region. Given the various degrees of financial system infrastructure, and levels of financial development among SEACEN economies, the availability of diverse sets of macro and micro-prudential indicators is indeed vital.

This implies that policymakers, especially financial authorities including the central bank, have to give more effort and attention to improving financial system stability. Indeed, it is in everyone's interest to promote financial system stability to reduce uncertainty in the economy and to support economic sustainability. Some SEACEN economies have developed several economic and banking indicators as tools for observing risks that may appear in the economy and financial system. These indicators are key components that enable policymakers and bank supervisors to formulate and implement prudential regulation and regulatory forbearance. Moreover, they have included strategic components in the design of crisis early warning signals. Accordingly, these macro and micro-prudential indicators form an integral part of the financial system stability frameworks already established and espoused by SEACEN economies. All tools and indicators would be more powerful and effective if there were collaboration and coordination between the home and host authorities on gathering and sharing information, on developing tools and indicators as well as on comprehensive crisis resolution. The importance of collaboration and coordination is also emphasised by many researchers (Caruana (2009), Nier (2009), Wickman-Parak (2009)), among others.

Although all out efforts to avoid crisis will not guarantee zero future financial crisis, crisis prevention and resolution are absolute necessities. The central bank should be accountable for implementing procedures for maintaining and promoting financial system stability. These procedures relate to the organisation set-up, developing tools, creating indicators and building human capacity in the central bank that have the competency to perform rigorous macroprudential surveillance. In addition, the central bank's effort in facilitating and establishing a financial safety net including crisis management protocols, can also be regarded as part of maintaining and promoting financial system stability.

The importance of the financial safety net is one of the key lessons from the recent global financial crisis. The importance and urgency of a financial safety net calls for its set-up before the next crisis arrives in economies that do not have one. In the case of Indonesia, the experience in 2008 was a very good example on how a potential systemic risk could be reduced and on how the policy makers could be protected by law and politically supported for their policy decisions. The Greek experience in 2010 is also a very good example on how international aid committed by one or several countries can prevent a crisis from getting worse.[2]

In alignment with the above contentions and intentions to increase and improve financial system stability in the SEACEN economies, this study provides a survey of how the SEACEN economies promote financial system stability. The survey is important for examining their efforts in crisis prevention and their readiness in resolving crisis. In this regard, it is essential to look at how they conduct macroprudential surveillance and the kind of tools and indicators used in the respective financial systems. Once information are gathered, an assessment on the frameworks will provide some positive suggestions for improvements to the existing conditions. Increasing correlation among markets in SEACEN economies[3] are another reason why this survey is very important. In particular, identifying and investigating all tools and indicators used by SEACEN member economies will help the region identify the sources of vulnerabilities and thereby provide suggestions on the improvement of capabilities for promoting financial system stability.

1.2 Methodology and Objectives

This study identifies and investigates the framework of financial system stability among the SEACEN economies including their development and current conditions. The framework will be based on every aspect of risks that could make the financial system vulnerable. The analysis comprises five factors that support the financial system stability framework. First, this study identifies the financial system structure, financial authorities or committees that are responsible for maintaining financial system stability in the SEACEN economies. Second, it investigates policies and regulations intended to address financial system stability

2. See http://www.cnn.com/2010/BUSINESS/02/10/greek.debt.qanda/index.html and see also http://www.guardian.co.uk/world/2010/may/05/greece-crisis-threatens-eu-future-merkel-germany

3. Increasing correlation among markets in the SEACEN economies can be found using the dynamic correlation coefficient method.

issues as well as international compliance. It also covers regulations implemented by the financial authorities such as the lender of last resort facility and deposit insurance mechanisms, which form part of crisis resolution. Third, it identifies macro- and micro-prudential tools and indicators used for macroprudential surveillance and microprudential supervision. It also identifies the tools and indicators to provide early warning signals of impending economic shocks for mitigating the impact of systemic and idiosyncratic risks. The identification include indices of bank distress, stress testing of financial soundness and financial conditions, and early warning indicators.

Fourthly, this study will also cover the analyses used in daily activities, especially within the central bank, and strategic communication of policy makers such as reports (annually or bi-annually). Lastly, it identifies supporting factors such as human resources which have the competencies to perform the necessary tasks to achieve financial system stability, necessary training, information technology and other infrastructures needed to do the job well. To increase the usefulness of the study for the SEACEN member economies, this study will assess the analysis, tools and indicators and suggest areas for improvement. Therefore, this study may provide some valuable recommendations for policymakers in supporting financial system stability.

The two objectives of this study is firstly, to survey sets of macro- and micro-prudential tools and indicators used extensively by the SEACEN economies, given their levels of financial system development and regulation. The second objective is to provide critical assessments and evaluations on various distinctive features of the financial system stability frameworks adopted by the SEACEN economies with the view to identify the strengths and weaknesses of the respective frameworks. To achieve these objectives, the literature review on financial system stability in these economies is essential. The information used in this study are derived from researchers of participating SEACEN member central banks, central bank annual reports or specific reports regarding financial system stability such as Financial Stability Review or Financial Stability Report. As many issues may arise in assessing and evaluating tools and indicators as well as applying macro and micro prudential regulations, it is very useful to obtain expert views for issues such as data collation problems and areas for improvements.

This study comprises experiences of the SEACEN economies. These experiences are very useful to assess and to evaluate the financial system stability framework as well as to make comparisons across the SEACEN economies. As mentioned above, since financial markets are integrated and risks could spread

easily, this study could become a base research for those who wish to make further studies in terms collaboration in improving tools and indicators in the participating SEACEN economies. Moreover, collaboration in this context would be commendable efforts to strengthen financial system stability and to circumvent any future systemic financial system distress that may arise in the SEACEN economies.

1.3 Structure of Paper

The rest of the paper is organised as follows. Section 2 provides a brief description of financial system stability including the definition of macroprudential policies. This Section also discusses some existing surveys that relate to financial system stability. Section 3 and 4 are the main parts of this paper. The former presents comparisons in the strengthening of financial system stability among participating SEACEN economies from the survey while the latter describes some assessments and challenges in conducting macroprudential surveillance and promoting financial system stability. The conclusion and some recommendations are presented in Section 5.

2. Literature Reviews

2.1 Financial System Stability in Brief

Governments and financial authorities, especially central banks, care about financial system stability for several reasons. First, monetary policy works through the financial system. Second, the disruption of financial services and intermediation process can severely hurt the economy. Third, financial crises are always very costly for the economy and require huge taxpayers' pay out for recovery. Fourth, the world has become more interconnected through global links of the financial markets. In addition, for the economies such as Thailand, Indonesia and others, which experienced a financial crisis in 1997 – 1998, the episode has left a deep trauma. Thus, they would give their all to avoid a new financial crisis in the future. The many issues in financial system stability that were included in the agenda of the recent G-20 meeting, is proof that the financial system stability a vital and important global issue.

Although the term of financial system stability has been widely used in the last two decades, the definition is still not clear-cut. Many researchers have tried to define the term of financial system stability (Mishkin (1991), Crockett (1997), McFarlane (1999), Sinclair (2001), Duisenberg (2001) among others) while some have tried to define financial instability in their seminal works in

order to get a clearer understanding (De Graeve, Kick and Koetter (2008) and Klomp and De Haan (2009)). In general, there are some keywords that could represent the financial system stability namely, minimal disturbance to financial institutions and markets, minimal price volatility or avoidance of financial crisis. In addition, the key factors to financial system stability are a stable macroeconomic environment, well-managed financial institutions, sound prudential supervision framework, efficient financial markets and a safe and robust payment system (McFarlane, 1999).

Macroprudential policies are essential to financial system stability. Similar to financial system stability, the term of macroprudential surveillance is not easy to define. Although many people are familiar with the term of microprudential policy in the context of banking or financial institution regulation and supervision, the definition of macroprudential surveillance is still ambiguous. However, the difference between macroprudential and microprudential is quite clear. Borio (2009) argues that there are three fundamental features to distinguish macroprudential and microprudential approaches to regulation, namely objectives, focus and risk characterisation. In practice, macroprudential tools and instruments are not easily distinguishable with macroeconomic tools and instruments.

In order to manage systemic risk, a group of experts known as the G30, suggests four ways to consider macroprudential tools (Group of Thirty, 2010), namely avoiding excessive leverage, liquidity sufficiency for well functioning markets, preventing excessive credit extension, and regulating market activities that could pose systemic risks. At the level of implementation, macroprudential tools can also be divided into two types, namely regulatory-based macroprudential tools and supervisory-based macroprudential tools. The former can be created from either macroeconomic or microprudential indicators. The latter can be intensive supervision on particular financial institutions such as daily liquidity monitoring for large banks.

The recent global financial crisis also gave another lesson for policy makers. Blanchard et al (2010) claims that while stable inflation is necessary, it is insufficient as financial system stability is necessary for crisis prevention. For the last couple of years, the trend in many economies is to include a new mandate for central banks to maintain and promote financial system stability. In this regard, the new mandate has to be explicitly stated in the central bank act. A survey conducted by the IMF in the late 2010 reveals that most of surveyed economies included an explicit financial system stability mandate while many are in the process of introducing the mandate as the main central bank task or objective (FSB, IMF and BIS, 2011).

Although a central bank has a mandate, it is not an easy task for it to promote financial system stability. When the central bank is maintaining price stability, the target is clear as in the level of inflation while the instruments are also identifiable such as the policy interest rate. Thus the accountability of the central bank is clear whether the target is reached or otherwise. In addition, the central bank also has the power to influence the economy in order to achieve its target. Unlike the price stability mandate, it is difficult to provide the target and accountability for the task of maintaining and promoting financial system stability. Gadanecz and Jayaram (2009) argue that in contrast to price stability, financial system stability is not easy to define or measure given the interdependence and the complex interactions of different elements of the financial system in of itself and within the real economy. The central bank also does not have any power to influence markets and financial institutions that are not under its authority or jurisdiction. In this case, the central bank is only one of financial authorities in the economy that regulate and supervise the financial system. Therefore, collaboration and coordination among regulators will determine the success of the central bank in its task and mandate (De Graeve, Kick and Koetter, 2008).

The issue of financial system stability does not involve only tackling issues at the level of the economy but also at the multinational organisational and global levels. Lessons from many past crises have shown that countries have to work hand-in-hand to avoid future financial crisis. This is because the interconnectedness between financial markets are becoming stronger and systemic risks are getting higher. Multinational companies including financial and non-financial institutions have spread globally meaning that a financial debacle in one economy could easily have a systemic impact on other economies. In this situation, cross-border supervision and capital regulation for systemically important financial institutions are necessary to mitigate risks and reduce moral hazards in the financial system.

To promote financial system stability, regulators work on microprudential supervision, macroprudential surveillance, and establishing crisis resolution. Microprudential supervision has been developed and established since the inception of the banking sector, whereas macroprudential surveillance is a new paradigm. Both activities are regarded as preventive actions, which focus on identifying and examining potential threats to financial system stability and reduction of risks. Meanwhile, crisis resolution is also an important aspect of financial system stability which includes liquidity provision for distressed financial

institutions, preparation for a financial crisis and coordination among authorities. The latter is especially important for strengthening the effectiveness of the coordination mechanism among providers of the financial safety net.

2.2. Survey on Financial System Stability Tools and Indicators

Some surveys were carried out for financial system stability. The International Monetary Fund (IMF) jointly with the World Bank, conducted the Financial Sector Assessment Program (FSAP) in several economies. The programme was to assess the stability of the financial sector of several countries and to assess its potential contribution to growth and development (IMF, 2010). In addition to examining the soundness of financial institutions in those countries, the programme also performed stress-testing to examine how the financial system will perform under some extreme shocks such as macroeconomic shocks, liquidity shortage, etc. It also reviewed the quality of the legal framework and financial infrastructure.

With regard to policy, the Bank for International Settlement (BIS) under the Financial Stability Institute also conducts a survey to look at some responses to the Basel II implementation (BIS, 2010).This survey follows similar surveys conducted every two years. The Committee on the Global Financial System (CGFS) carries out a survey to identify central banks' macroprudential policies and instruments used in their jurisdictions for macroprudential purposes.

Oosterloo and De Haan (2004) conducted another survey that focuses on financial system stability responsibilities and how these responsibilities are executed. Cihak (2006) carried out a survey on financial stability reports where he reviewed the efforts and roles of central banks in financial system stability. The assessments and improvement of financial stability reports are the main outcomes of his survey. Danielsson et al (2005) use his survey to propose regulations for hedge funds to reduce the likelihood and potential costs of the failure of systemically important hedge funds.

Many of the surveys make use reports, questionnaires, and interviews of financial authorities as sources of information. The survey for this study emphasises on discussions and self-assessments of the financial system stability framework in the SEACEN member economies. For these economies, this is the first time a survey of this kind has been carried out.

3. Comparisons in the Promotion of Financial System Stability

Of the 17 SEACEN economies, nine participated in this research study, namely Cambodia, Chinese Taipei, Indonesia, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, and Vietnam. During the financial global crisis in 2007 – 2009, many financial systems in participating economies were resilient, reflected by the healthy banking sector and profitability albeit decelerating. Non-performing loans, although increasing, were still at manageable levels.

Although there were slowdowns in the growths of deposits and credit in 2008 and 2009, banks' assets continued to grow moderately in general. Most bank capital in these economies was also above the minimum level required by regulators and was on an increasing trend. The economic growths in these economies also reached positive numbers in 2008 and 2009 even though some economies experienced higher inflation rates. Their economic growths attained normal levels in 2010.

3.1 Financial Systems

The financial systems in the participating economies have been growing continuously since the 1997 Asian financial crisis. Compared to other financial institutions, the banking sector is dominant in terms of assets. Total assets of the banking sector comprise more than 50% of the total assets of the financial system excluding the central bank in each of the economies, with some having more than 75% share of total assets. This is not surprising in case of an economy like Cambodia where the financial system is still in its infancy and non-bank financial institutions comprise only a small proportion of the total and where money and capital markets are not yet in existence.

Most central banks in participating economies regulate and supervise the banking sector. Most non-bank financial institutions and capital markets are regulated and supervised by the Ministries of Finance. Only in Chinese Taipei is the banking sector under the supervision of the Financial Supervisory Commission. Table 1 shows the authorities, supervisory and regulatory bodies of the financial system in participating economies.

Table 1
Financial System Regulators and Supervisors

Economies	Regulators and Supervisors	Institutions/Markets
Cambodia	▪ National Bank of Cambodia	▪ All Commercial and Specialized Banks, Licensed Microfinance Institutions, Registered Rural Credit Operators
	▪ Ministry of Economy and Finance	▪ Insurance, Writing Insurance and Reinsurance Companies
Chinese Taipei	▪ Financial Supervisory Commission	▪ Banking , Securities and Insurance Sectors
Indonesia	▪ Bank Indonesia	▪ All Commercial and Rural Banks (conventional and Sharia)
	▪ Ministry of Finance	▪ Non-Bank Financial Institutions (Insurance Companies, Pension Funds, Finance and Securities Companies, Pawnshops)
Malaysia	▪ Bank Negara Malaysia	▪ All Banks, Insurance and Reinsurance Companies, Development Financial Institutions (prescribed under Development Financial Institutions Act 2002) and licensed intermediaries such as Insurance Brokers, Loss Adjusters, Money Brokers, and Payment System Operators
	▪ Securities Commission Malaysia	▪ Securities and Futures
Nepal	▪ Nepal Rastra Bank	▪ Commercial and Development Banks, Finance Companies, Micro-Finance Development Banks, some of The Cooperatives, Non-Governmental Micro-Credit Institutions
	▪ Insurance Board	▪ Insurance companies
	▪ Securities Exchange Board	▪ Stock Exchange, Brokers and Securities Companies as well as Capital/Securities Markets
	▪ Government of Nepal	▪ Other companies, Investment Trust, Provident Fund
Philippines	▪ Bangko Sentral ng Pilipinas	▪ Banking Sector including Cooperative Banks, Microfinance Banks and Islamic Banks and Non-Bank Financial Institutions with quasi-banking function and/or with trust authority
	▪ Securities Exchange Commission	▪ Non-Banking Sector and Capital Market
	▪ Insurance Commission	▪ Insurance Industry
	▪ Cooperative Development Authority	▪ Cooperative Industry (except Cooperative Banks)
Sri Lanka	▪ Central Bank of Sri Lanka	▪ All Banks, Finance and Finance Leasing Companies, and Primary Dealers in Government Securities
	▪ Securities and Exchange Commission	▪ Stock Exchange, Stock Brokers, Stock Dealers, Unit Trust Companies, Underwriters, Margin

3.2 Institutional and Organisation

It is generally believed that a clear and explicit mandate in the central bank act could increase the effectiveness of central bank policies. The mandate also could increase public confidence. The central banks of Malaysia, Sri Lanka and Vietnam have clear and explicit mandates for maintaining or promoting financial

system stability. Some central banks are in the process of introducing clear and explicit mandates in the central bank act such as Indonesia, Philippines and Thailand. The other central banks have yet to have clear and explicit mandates.

The mandate for financial system stability has consequences for central banks in that they have to conduct macroprudential surveillance to monitor and identify potential risks and vulnerabilities. It also has to introduce new macroprudential policies, other than monetary and microprudential policies, in order to reduce and mitigate risks in the financial system. Unfortunately, these consequences have also impacted the central banks that have yet a clear and explicit mandate but are still required to maintain price stability. Stability in the financial system can support monetary policy transmission and improve the distribution of resources in the economy. This is one of the reasons why the mandate of promoting financial system stability has to be given to the central bank.

Although the main institution for promoting financial system stability is the central bank, especially when the banking sector is dominant in the financial system, the strengthening of financial system stability should be the concern of everyone. In some economies, the authorities and regulators of the financial system comprise of many institutions such as the Ministry of Finance, Central Bank, and Securities Exchange Commission. Therefore, in some economies such as Indonesia, Malaysia, Philippines, Nepal, Sri Lanka and Thailand, a committee or a board at the national level has been set up to increase coordination among authorities and regulators, to exchange data and information as well as to amplify the importance of the task of maintaining financial system stability. The members of committee may also be extended to include experts in the financial sector to provide advice and input from a different perspective. However, a committee at the national level is probably not required for an economy that has a simple and uncomplicated financial system such as Cambodia. A committee may also not be needed when the regulators and authorities are under one body such as the Banking Supervisory Agency (BSA) in Vietnam or one institution such as the Financial Supervisory Commission (FSC) in Chinese Taipei.

At the central bank level, some central banks in participating economies have a unit in their organisation that focuses solely on financial system stability. This unit is separate from the bank supervision department and performs special tasks such as monitoring and conducting macroprudential surveillance of the financial system. The unit may also provide some analysis of the financial system and make recommendations for macroprudential policies. Other than the unit, some central banks have also set up a committee for financial system stability

within their organisation. The objective of this committee is to increase coordination among units or departments within the central bank. The governor of the central bank or deputy governor who is in charge of the financial system stability sector usually chairs the committee. In the case of Cambodia, this special unit has yet to be set up. In its case, the unit that is responsible for conducting macro and economic surveillance is also responsible for conducting macroprudential surveillance, i.e. the Economic Research and Statistic Department.

For this study, except for the central banks, there is no information on the organisational structures of other authorities and regulators responsible for maintaining financial system stability or the conduct of macroprudential surveillance.

The implementation of macroprudential surveillance requires the expertise or human resources that have key essential capabilities. While most participating central banks report the availability of such experts, they are nonetheless continually training and building the capacity of such resources. New knowledge is continually required to cope with the never ending financial innovation and financial system development.

3.3 Regulation and International Compliance

The financial system is the most highly regulated in comparison to other systems. In a narrow sense, this is to protect depositors and investors; while in a broader sense, this is to promote and support sustainable economic growth. In regulating the financial system, many standard regulations have been implemented and continue to be revised to keep up with financial innovations and financial system development. For the banking system, including the payment system, the Bank for International Settlement has developed many international standards that have been adopted by many economies including the participating SEACEN economies. They include the Core Principles for Effective Banking Supervision such as the Basel Core Principles and Basel II, Core Principles for Systemically Important Payment Systems, etc. In the case of insurance, the International Association of Insurance Supervisors developed the Insurance Core Principles. For the capital market, the International Organization of Securities Commissions established the core principles for securities regulation.

All the participating economies have adopted most of the international standards as a part of their efforts in promoting financial system stability. Some such as Chinese Taipei, Indonesia, Philippines and Vietnam are preparing to adopt Basel III for their banking sectors. In the course of adopting these standards

in the respective jurisdictions, most had to make some adjustments to suit local conditions and situations. Other regulations such as the legal framework for regulations and supervision as well as prudential requirements in the banking sector implemented in SEACEN economies can be found in Batunanggar (2008).

3.4 Macroprudential Regulations

The objectives of introducing macroprudential measures are to mitigate and to reduce risks in the financial system. In addition, they are also to protect and to strengthen the financial system against vulnerabilities on the borrower side. Policy makers will implement macroprudential measures most suited to their economies, with some adjustments and modifications based on the current condition of their financial system. For example, reserve requirement regulations in Chinese Taipei and Indonesia vary from regulations implemented in Cambodia, Malaysia, Nepal, Philippines and Sri Lanka where the reserve requirement ratio is a simple percentage of bank deposits. In Chinese Taipei, the reserve requirement ratios vary depending on the types of deposits or funds (Batunanggar, 2008).

In the case of Indonesia, which has high excess liquidity in the banking system, reserve requirement regulation for local currency consists of three ratios, namely primary, secondary and reserve requirement ratio linked to the loan-to-deposit ratio. The primary and secondary reserves are a simple percentage of bank deposits. The primary reserves must be fulfilled by cash while the secondary reserve may be fulfilled by cash or very liquid and free risk assets such as government bonds or Bank Indonesia Certificates (Sertifikat Bank Indonesia/ SBI). The secondary reserves are for banks to maintain sufficient liquid assets in order to reduce liquidity risk. The reserve requirement ratio linked to loan-to-deposit ratio is imposed as there is still excess liquidity in some banks. This excess is the liquidity that is more than that required and needed by banks to operate, and is reflected by the low loan-to-deposit ratio. Bank Indonesia has an optimal target for the bank loan-to-deposit ratio. Thus, the reserve requirement ratio will be higher if a bank has its loan-to-deposit ratio further from the target. Banks that have low loan-to-deposit ratios, i.e below the target, are encouraged to extend more loans to the real sector. On the other hand, banks that have high loan-to-deposit ratio, i.e above the target, are encouraged to reduce their loans to the real sector so that risk exposures on credit will decrease. However, a bank could have a loan-to-deposit ratio which is higher than the target if it has sufficient capital to support its risky investments. Macroprudential measures vary among financial systems as can be seen in Table 2.

Table 2
Macroprudential Tools and Instruments

Tools and Instruments	C	CT	I	M	N	P	S	T	V
Reserve requirements	√	√	√	√	√	√	√	√	√
Intensive supervision on systemic banks			√				√	√	
Deposit insurance		√	√	√	√	√	√	√	√
Limit on net open currency position	√		√		√	√	√	√	√
Limit on currency mismatches						√			
Foreign currency restriction							√		√
Direct control/limit on lending to specific sector		√		√	√	√	√		√
Limit on single borrower and related parties	√	√	√	√	√	√	√	√	√
Loan to deposit requirement					√	√			√
Loan to value ratio		√		√	√	√		√	√
Limit on credit growth									√
Limit on securities and real estate investment		√		√	√	√	√	√	√
Liquidity ratio	√	√			√	√	√		√
Capital surcharges for systemically important bank						√			

C = Cambodia; CT = Chinese Taipei; I = Indonesia; M = Malaysia; N = Nepal; P = Philippines; S = Sri Lanka; T = Thailand; V = Vietnam.

Table 2 shows that macroprudential tools or instruments in one system do not necessarily have to be deployed in other systems. They have also to be linked with the regulators' objectives and be fine-tuned to suit the current and local conditions to maximise their effectiveness and to avert negative impacts on the economy.

3.5 Conducting Macroprudential Surveillance and Supporting Tools and Indicators

Macroprudential surveillance is very important for central banks in the course of maintaining and promoting financial system stability. These include the detection and identification of potential vulnerabilities and risks and include the monitoring of financial institutions, non-financial institutions, financial markets, and other entities or systems that relate to the financial system. Tools and indicators used for macroprudential surveillance vary among the participating economies due to particular local conditions, structure of the economy, and the requirements of policy decision makers.

However, a sophisticated tool or indicator is probably unnecessary for an economy where the financial system is still in its infancy such as Cambodia.

Although arguable, simple and conventional analysis or tools would still be relevant and workable in Cambodia. The conduct of macroprudential surveillance and main tools and indicators used in participating economies are described in the following:

In **Cambodia**, the tools for monitoring financial system stability are used mainly for the banking sector. However, tools for detecting risks emerging at the macro level are currently not deployed. The financial stability index and other explicit monitoring tools have yet to be developed. The National Bank of Cambodia uses fundamental tools such as macroeconomic and micro prudential indicators as part of its early warning system. The important micro prudential indicators are drawn from the financial soundness indicators provided by the IMF.

In **Chinese Taipei**, monitoring tools including macroprudential analysis which focuses on the financial system, are used to identify potential sources of instability, to limit system-wide distress and to avoid large output costs. Other tools and indicators include leading indicators of financial instability, early warning system and financial soundness indicators to track the development of financial institutions, financial markets, real estate market, corporations, and household sector.

In **Indonesia**, Bank Indonesia is intensifying research and surveillance on risk identification, monitoring and evaluation in the banking sector, capital market, non-bank financial institutions and household as well as corporate sector. Tools and indicators such as the early warning system, leading indicators for risks, transition matrices for banking sector, default probabilities of non-financial institutions, market liquidity, and financial stability indices are constructed and developed continuously. A model of the banking system has also been developed as a simulation tool for macroprudential policy. The financial stability index is used to assess the overall condition and development of the Indonesia financial system.

In **Malaysia**, macrosurveillance analysis takes into account both quantitative and qualitative information using static and trend analyses as well as forward-looking tools. A wide-range of indicators is employed by Bank Negara Malaysia in monitoring the health of financial institutions and markets, and of their corporate and household counterparts. These indicators were chosen following a review of the Financial Soundness Indicators developed by the International Monetary Fund (IMF) and benchmarking of indicators used by other economies, taking into account the distinctiveness of the Malaysian financial landscape. Various forward-looking quantitative tools have been developed over the years to

supplement other surveillance tools within the Bank's framework. Various other risk indicators were also developed to enhance the robustness of risks assessment in the corporate sector, which may have an impact on the stability of the overall financial system. The z-score for emerging markets, distance to default and expected default frequency models are being adopted in the Bank's surveillance framework to assess future credit risk of the corporate sector.

In **Nepal**, Nepal Rastra Bank has developed various surveillance and analytical tools to ensure the safety and soundness of the banks and financial institutions under its supervision. Although the financial stability index has yet to be developed, some indicators for surveillance are derived from financial markets, household and corporate sectors and financial soundness indicators. Early warning indicators are derived from financial analysis and reviews. In addition, the Central Bank also uses microprudential tools and indicators.

In the **Philippines**, Bangko Sentral ng Pilipinas has developed various surveillance and analytical tools to ensure the overall safety and soundness of all banks and other financial institutions under its supervision. These tools include financial stability indicators consisting of macro and micro prudential indicators, rating systems, early warning systems for macroeconomy and bank solvency, stress testing, and various periodic reports related to financial system stability.

In **Sri Lanka**, the Central Bank of Sri Lanka uses the banking soundness index and financial soundness indicators. The banking soundness index is constructed using the weighted average of banks' selected financial soundness indicators to capture periods of strong and weak performance of the banking sector. As the Central Bank supervises and regulates non-bank financial institutions, the financial soundness indicators are also derived from all financial institutions under the Central Bank's jurisdiction.

In **Thailand**, the Bank of Thailand has been developing a list of tools for conducting macroprudential surveillances. All the developed tools which are based on indicators or based on models can be divided into 4 types. First are the coincident indicators which comprise financial soundness indicators and Thailand's financial stress index. The second are leading indicators and early-warning models that consist of leading indicators for financial crisis, default probability of non-financial corporate sector and the early warning system model. Third are macro-stress-testing models that consist of stress testing models for the commercial bank system and satellite non-financial corporate and household sector models. The last category are the contagion and spillover models.

In **Vietnam**, tools such as the financial stability index, leading indicators, forward-looking tools and indicators as well as the early warning system are currently unavailable. However, the State Bank of Vietnam uses macroeconomic indicators and microprudential indicators for its macroprudential surveillance.

In addition to the above mentioned tools and indicators, most participating SEACEN economies conduct stress testing to gauge the resilience of the financial system in times of extreme shocks such as macroeconomic shock, liquidity shortage, etc. The stress testing is conducted at the levels of the financial system as a whole, as well as individual institutions. A summary of stress testing in participating SEACEN economies is presented in Table 3.

Table 3
Stress Testing

Economies	Stress Testing
Cambodia	▪ None
Chinese Taipei	▪ Credit risk ▪ Macro stress test: interest rate, inflation rate, real GDP, terms of trade
Indonesia	▪ Credit, market (interest rates, exchange rates, government bond's price) and liquidity risks ▪ Macro stress tests: economic condition, real interest rate and real effective exchange rate ▪ Integrated stress test ▪ Interbank stress test
Malaysia	▪ Credit, market and liquidity risks
Nepal	▪ Credit, market and liquidity risks
Philippines	▪ Credit, interest rate and foreign exchange risks
Sri Lanka	▪ Credit, interest rate, foreign exchange and liquidity risks ▪ Integrated stress test
Thailand	▪ Macro stress tests: interest rates, exchange rates, oil prices, asset prices, and economic condition either domestic or abroad
Vietnam	▪ None

3.6 Communication to Stakeholders and Reporting

Communication and information regarding financial system stability are very important and form part of the strategies for financial system stability. Stakeholders and the public have to be informed of the condition of the financial system on a regular basis as part of accountability measures to manage and promote financial system stability. This communication is also important to increase public confidence in the financial system. Many regulators have published specific reports or reviews while others have included financial stability as part of economic, inflation and banking supervision reports. The reports or reviews

published by the participating SEACEN economies on financial system stability are summarised in Table 4.

Table 4
Reports and Reviews

Countries	Reports and Reviews	Frequency
Cambodia	▪ Economic and Monetary Statistics ▪ Balance of Payment Statistics Bulletin	▪ Monthly ▪ Quarterly
Chinese Taipei	▪ Financial Stability Report	▪ Annual
Indonesia	▪ Financial Stability Review	▪ Semiannual
Malaysia	▪ Financial Stability and Payment Systems Report	▪ Annual
Nepal	▪ As part of Inflation and Economic Report	▪ Monthly and Annual
Philippines	▪ Financial Stability Report (circulated internally)	▪ Annual
Sri Lanka	▪ Financial System Stability Review	▪ Annual
Thailand	▪ As part of Inflation Report ▪ As part of Supervision Report ▪ As part of Payment System Report	▪ Quarterly ▪ Annual ▪ Annual
Vietnam	▪ Partly presented in SBV's Report	▪ Annual

3.7 Crisis Resolution

Steps for handling a crisis are very important in the overall financial system stability framework. Financial safety net including crisis management protocol has to be legitimate and endorsed by the Government and need to be established before the next crisis appears. Crisis resolution protocols should cover not only the banking sector but also the whole financial system. They can help minimise the cost of crisis, lessen the severity of damage on the economy and the financial system, as well as resolve the crisis as quick as possible. In this regard, coordination among authorities is very important especially during the crisis. Monetary and financial authorities must work closely and hand in hand to cope with the crisis. In addition, the protocols can provide essential legal protection for policy makers in the course of crisis resolution.

In **Cambodia**, the financial safety net comprises four important elements, namely lender of last resort, regulation, and supervision, system for addressing problem bank resolution and insolvency and depositor protection. Although crisis management protocol has not been set up, the National Bank of Cambodia works very closely with the Ministry of Economic and Finance under the Royal Government of Cambodia for ensuring macroeconomic and financial system stability.

In **Chinese Taipei**, the coverage of crisis resolution includes legal receivership, coordination and information sharing, prompt corrective actions and financial market exit mechanism, liquidity injection, lender of last resort, and full deposit insurance. Crisis management protocols are not explicitly reported in this survey.

In **Indonesia**, the financial safety net of the financial system and crisis management protocols are under review by the Parliament, Government, and Bank Indonesia. However, the Ministry of Finance, Bank Indonesia, and the Indonesia Deposit Insurance Corporation have endorsed a memorandum of understanding for the financial sector safety net for the banking system. The Indonesian financial sector safety net comprises independent and effective supervision, lender of last resort, deposit insurance scheme, and effective crisis management.

In **Malaysia**, the financial safety net forms an integral part of the financial system stability framework. It comprises the deposit insurance system, the availability of effective intervention and resolution mechanism and tools, and the provision of liquidity support by the Bank Negara Malaysia for financial institutions in distress. Although crisis management protocols are not reported explicitly in this survey, an effective collaborative and coordination framework between Bank Negara Malaysia and the Malaysia Deposit Insurance Corporation is one of the critical factors to ensure the successful function of the Malaysian financial safety net.

In **Nepal**, the crisis resolution mechanism, which is yet to be ready, is a main concern for Nepal Rastra Bank. In the meantime, the function of lender of the last resort and deposit insurance play the part of a financial safety net in the event of crises and emergencies.

In the **Philippines**, the financial safety net includes a function of lender of last resort and deposit insurance coverage. In addition, in place are early bank problem resolution mechanisms that include prompt corrective actions and strengthening programmes for rural banks.

In **Sri Lanka**, the financial safety net includes the function of lender of last resort and deposit insurance scheme. In addition, the Central Bank of Sri Lanka prepares a resolution for banks as part of its financial safety net. The resolution methods include the identification of bank failure, customer protection, purchase and assumption transaction, bridge banking, open-bank assistance, restructuring, merger and acquisition, and liquidation. Furthermore, the Central Bank of Sri

Lanka has also established a resolution for registered finance companies and specialised finance-leasing companies, which includes a credit guarantee scheme for bank loan facilities to those companies.

In **Thailand**, the Bank of Thailand has prepared a contingency plan that deals with systemic banking crisis, as well as a continuity plan for disaster events. The contingency plan is a guide for banks in preparation of their own disaster recovery and business continuity plans. The Crisis Management Committee chaired by the Governor of Bank of Thailand was established as the central command to coordinate and to manage banking crisis resolution. In addition, the Bank of Thailand has established transparent guidelines governing the use of emergency credit to banks perceived as solvent but illiquid. A Working Group has also been set up to arrange scenarios for testing every year and to provide feedback for improvements in the contingency plans (IMF, 2009).

In **Vietnam**, crisis management protocols have not been established yet. However, Vietnam's financial safety net is in place, especially for the banking sector, comprising of regulation and supervision, lender of last resort, assisting distressed banks and deposit insurance scheme.

4. Assessment and Challenges

Although financial system stability still has an amorphous definition, the awareness of it is, nonetheless, important. The financial authorities in SEACEN economies deserve accolades for their efforts in maintaining and promoting financial system stability. These efforts are commendable on several fronts. Firstly, there is a ready willingness among the central banks to have in place an appropriate mandate to perform the task of strengthening financial system stability. Secondly, to perform this task, the central banks have established units or divisions or/and committees to be specifically in charge of financial system stability. Thirdly, to achieve their goal, the central banks have provided extensive training of human resources to build the necessary competencies and capabilities.

Fourthly, to conduct macroprudential surveillance, the central banks have created and developed the necessary macroprudential tools and indicators. Fifthly, the financial authorities have also adopted and complied with international standards. Sixth, for the effective communication and dissemination of information, the financial authorities have strengthened collaboration efforts as well as improved their reporting to their stakeholders. Seventh, the financial authorities have also established crisis resolution protocols as an integral part of promoting financial system stability. As a result of their efforts and awareness,

most participating SEACEN economies have shown financial resilience during the recent global financial crisis.

However, the on-going financial innovation and development of the financial system call for continuous improvements in crisis prevention and resolution. For example, a tool or a model used for macroprudential surveillance today would be inappropriate for the same purpose in the future because its parameters have to be re-estimated or recalibrated. Consequently, the experts who maintain the tool or the model have to be continually updated on the latest issues, knowledge, technology, and literature. In all likelihood, the financial authorities, which have a scarcity of experts and technologies, will face some constraints and challenges in the course of developing and improving macroprudential tools and indicators when economic agents and markets behave differently as a result of changes in regulations and economic conditions.

Tools and indicators used in most participating SEACEN economies are derived from historical data and are backward looking. This is because most financial authorities lack forward looking tools and early warning indicators. In addition, as most of the systems are disintegrated, data availability is scarce as well as unreliable. There are also information sharing and data exchange problems among financial authorities. These conditions create additional challenges for macroprudential surveillance. Furthermore, the high possibility of undetectable potential risks and imbalances in the financial system makes the tasks even more challenging and difficult.

Assessment of risks in financial institutions especially in the banking sector is the main objective in promoting financial system stability in most SEACEN economies. However, in some SEACEN economies, the assessing of risks of non-bank financial institutions and non-financial institutions, such as corporations and households, has received inadequate attention. Additionally, there is also a need for the assessment of cross-institutional and cross-sector risk transmissions. These conditions can be potential contagion risks to the financial system.

Although all the participating SEACEN economies have established their financial safety nets, most are only concentrated on the banking sector. The non-banking sector should be included within the scope of the financial safety net to prevent the spread of contagion risks from the non-banking to the banking sector. In the event of crisis, the lack of legal protection for policy makers is another major issue in some economies that need to be addressed to prevent moral hazard in decision-making processes. The lack of legal protection for policy makers is a constraint for effective and prompt policy responses. Financial system

stability literacy for the general public is another area that has received inadequate attention. It is very important to build awareness for the importance of financial system stability. Public awareness will lead to adequate political support from the government and parliament and assist the central bank in obtaining the mandate to perform the task of promoting financial system stability.

Coordination among regulators or authorities and between the monetary department and banking supervision department within the central bank is another important consideration in the SEACEN economies. Inadequate coordination among parties will make data sharing and synchronising policies burdensome and difficult, increasing the challenges and complexity for financial system stability processes.

All the aspects explained above are the general assessment and challenges for financial authorities in SEACEN economies. Another challenge is the existence of global imbalances that have led to huge capital inflows into SEACEN economies. This could create instability in the financial systems of SEACEN economies. Other challenges such as the stage of development of the financial systems in Cambodia and Vietnam; the process of obtaining the mandate for Indonesia and Philippines; the process of re-organisation of financial authorities in Indonesia; communication to stakeholders, coordination and collaboration among financial authorities within one economy and among economies; need to be looked at seriously, to ensure the stability of the financial systems in the SEACEN economies.

5. Conclusion and Recommendations

Financial system stability is a new field in central bank policy. In this context, issues and recommendations on how to promote financial system stability is a hot topic globally. From the mandate for strengthening financial system stability, developing tools and indicators, creating macroprudential instruments, to improving financial institutions' supervision frameworks are headlining discussions. This is because financial system stability including macroprudential policy is still in the process of finding a definite form. In addition, the tools and indicators as well as policy instruments are at their infancy requiring further development. No less important are the surveys on financial system stability that have been carried out to assess the readiness of economies to mitigate risks and to prevent new crisis.

Global financial crises have demonstrated that monetary policy is not the only approach for stabilisation and robust microprudential regulation and

supervision are not sufficient to mitigate risks to financial system stability. These lessons imply that policymakers, especially financial authorities including the central bank, have to continually focus on strengthening financial system stability. Although all out efforts to avoid a crisis will not assure zero financial crisis in the future, the preparation for crisis prevention and resolution are absolute necessities. The central bank should continue to implement procedures for maintaining and promoting financial system stability, reflecting concerns for accountability purposes.

Conducting macroprudential surveillance and microprudential supervision to promote financial system stability are very difficult tasks and need collaboration among authorities, not only within the economy but also among economies. Given the differentiation in financial system infrastructure, and levels of financial development among SEACEN economies, the availability of diverse sets of macro and micro-prudential indicators is indeed vital. However, a committee at the national level is probably not required for an economy that has a simple and uncomplicated financial system such as Cambodia. A committee may also not be needed when the regulators and authorities are under one body such as in Vietnam or one institution such as in Chinese Taipei.

This study also surveys how the SEACEN economies promote financial system stability. It assesses the tools, indicators and policies used by financial authorities in SEACEN economies so as to recommend areas for improvement. The nine participating economies for the study have reported the status of financial stability processes and their efforts have to be lauded in view of their financial system resilience especially in light of the recent global financial crisis. However, many areas can be improved upon due to the continual innovation and development in the financial system. In general, recommendations for improvements are as follows:

1. A mandate for maintaining financial system stability has to be given to the central banks to improve the effectiveness of financial system stability policies. In turn, good governance, transparency and accountability are essential for central banks;
2. A well-defined unit or department in the central bank has to be established to improve the effectiveness of conducting macroprudential surveillance;
3. Central banks have to gain access to data and information for macroprudential surveillance purposes. The central banks also need to have access to information on potential threats to the stability of the financial system;

4. The scope of data has to be expanded while the availability and reliability of data have to be improved upon. In addition, the scope of surveillance also has to be expanded by including the non-regulated sectors;
5. New tools, indicators and models should be continuously devised while the existing tools, indicators and models have to be constantly updated by redefinition, renewal, recalculation and recalibration. In addition, the awareness of banking and non-banking supervisors to the importance of conducting stress-testing has to be raised and supervisors' capabilities to perform the stress-testing have to be enhanced;
6. Assessment of risks to financial system stability has to be forward looking and conducted continuously. Consequently, human capacities and infrastructures should continuously be improved and research carried out continually;
7. Central banks should increase resources in the monetary department and financial system stability department who have expertise in microprudential and macroeconomic and macroprudential perspectives respectively;
8. Networking and establishing working groups among financial authorities, especially those responsible for promoting financial system stability, is critical for the sharing of information, experiences, challenges and needs in strengthening financial system stability. In addition, collaboration in developing tools and indicators among the financial authorities within the economy and among economies have to be increased;
9. Cross border supervision and intervention as well as crisis resolution frameworks have to be established and strengthened among these economies; and,
10. Public awareness for the importance of financial system stability has to be heightened by education and dissemination of appropriate information.

Although this study has provided various aspects of financial system stability frameworks, including self-assessments, by participating SEACEN member central banks, there is, unfortunately, scant information on organisational structures of financial authorities and regulators responsible for promoting financial system stability and conducting macroprudential surveillance except for central banks. Further research into this area would be interesting and pertinent. In addition, availability of expertise and resources in SEACEN economies in the area of financial stability should also be a subject for survey. Additionally, a similar survey could be extended to non-SEACEN member central banks but within the East Asian region so as to provide a wider scope on the "best model" for the regulatory structure on the financial system.

Another challenge is how to set-up a "common" and effective macroprudential policy toolkit for the region. For a start, and within a country, this involves greater effort to enhance cooperation between the central bank, insurance supervisor and investment banks to coordinate information on diverse financial products. The next stage, and between economies, it is to harmonise these market information between central banks, insurance supervisors and banking communities. Harmonising these markets information is also important in the design of a region-wide stress test. This is because the rise of shadow banking in the U.S. has given us lessons that modern financial innovations have made financial markets more inter-connected and inter-dependent.

The assessment and challenges suggest that the survey on financial system stability framework should be carried out regularly to assess the development of financial system stability and the commitment of financial system regulators in SEACEN economies. Due to the importance financial system stability, this study strongly recommends that regional organisations such as The SEACEN Centre facilitate regular meetings as a part of financial system stability promotion. Due to scarcity of resources, the meetings should be targeted at all levels of central bank management to align perceptions, exchange ideas, share experiences and challenges, and to collaborate with the main aim of strengthening macroprudential surveillance and developing macroprudential tools and indicators.

Lastly, this study can be a base research for those who wish to collaborate in the area of improving tools and indicators among the participating SEACEN economies. Collaboration in this context would be a useful effort for improving financial system stability as well as to avert future systemic financial system distress.

References

Wickman-Parak, B., (2009), "Financial Stability in Focus", Speech at the Swedish Chambers.

Batunanggar, S., (2008), "Comparison of Problem Bank Identification, Intervention and Resolution in the SEACEN Countries", The South East Asian Central Bank (SEACEN), Research and Training Centre, Kuala Lumpur Malaysia.

BIS, (2010), FSI Survey on the Implementation of the New Capital Adequacy Framework.

BIS – CGFS, (2010), Macroprudential Instruments and Frameworks: A Stocktaking of Issues and Experiences.

Blanchard, O., G. Dell'Ariccia and P. Mauro, (2010), "Rethinking Macroeconomic Policy", IMF Staff Position Note.

Borio, C., (2009): "Implementing the Macroprudential Approach to Financial Regulation and Supervision", *Bank of France Financial Stability Review*, September, http://www.banque-france.fr/gb/publications/telechar/rsf/2009/etude04_rsf_0909.pdf

Caruana, J., (2009), "Lessons of the Financial Crisis for Future Regulation of Financial Institutions and Markets and for Liquidity Management", International Monetary Fund.

Caruana, J., (2010), "The Great Financial Crisis: Lessons for the Design of Central Banks", Bank for International Settlements.

Cihak, M., (2006), "Central Banks and Financial Stability: A Survey of Financial Stability Reports", International Monetary Fund.

Crockett, A., (1997), "Why is Financial Stability a Goal of Public Policy?", Paper presented at Maintaining Financial Stability in a Global Economy Symposium, Federal Reserve Bank of Kansas City, August 28-30.

Danielsson, J., A. Taylor, and J.P. Zigrand, (2005), "Highwaymen or Heroes: Should Hedge Funds be Regulated?: A Survey", *Journal of Financial Stability*, Vol. 1 Issue 4, pp, 522 – 43.

De Graeve, F., T. Kick and M. Koetter, (2008), "Monetary Policy and Financial Instability: An Integrated Macro-Micro Approach", *Journal of Financial Stability*, Vol. 4, issue 3, pp 205 – 31.

Duisenberg, Willem F., (2001), "Developments in International Financial Market", Speech Before the Inauguration Ceremony of the Second Swedish National Pension Fund, Gothenburg, 26 September.

FSB, IMF and BIS, (2011), "Macroprudential Policy Tools and Frameworks, Update to G20 Finance Ministers and Central Bank Governors".

Gadanecz, B. and K. Jayaram, (2009), "Measures of Financial Stability: A Review", *IFC Bulletin* No. 31, Bank for International Settlements.

Group of Thirty, (2010), "Enhancing Financial Stability and Resilience: Macroprudential Policy, Tools, and System for the Future".

IMF, (2010), Financial Sector Assessment Program, Factsheet, http://www.imf.org/external/np/exr/facts/fsap.htm

Klomp, J. and J. De Haan, (2009), "Central Bank Independence and Financial Instability", *Journal of Financial Stability*, Vol. 5, Issue 4, pp 321 – 38.

McFarlane, I. J., (1999), "The Stability of Financial System", Reserve Bank of Australia Bulletin, August.

Mishkin, F.S., (1991), "Anatomy of a Financial Crisis", National Bureau of Economic Research, *Working Paper* No. 3934.

Nier, E. W., (2009), "Financial Stability Frameworks and the Role of Central Banks: Lessons for the Crisis", International Monetary Fund, *Working Paper* No. WP/09/70.

Oosterloo, S. and J. de Haan, (2004), "Central Banks and Financial Stability: A Survey", *Journal of Financial Stability*, Vol. 1, Issue 2, pp 257 – 73.

Sinclair, P., (2001), "Financial Stability and Central Banks", Central Bank Governors' Symposium, 29 May.

Chapter 2

FINANCIAL STABILITY IN CAMBODIA: UNDERSTANDING THE RISKS, SUPPORTING FACTORS AND MONITORING TOOLS

by
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1. Introduction

Following the world financial and economic crisis, the current popular agendas dominant in global and regional forums have been in recovery strategies. The efforts have been induced by a number of stakeholders such as researchers, academicians, economists, and especially both monetary and fiscal authorities. The effects of the global crisis are inevitable for most countries though the magnitude and response to the crisis may vary from one region, or country, to another. Given cross-border trade and international economic integration, the recovery effort cannot be individually isolated from the regional and global solutions.

Having experienced robust economic growth with double digits over four consecutive years from 2004 to 2007, the Cambodian financial and economic sectors were impacted by the global financial and economic crisis. The crisis has created some levels of risk for the Cambodian financial and economic systems, particularly in the reduction of sources of capital financing and private capital inflows into the country. The key economic drivers such as garment, tourism, construction, and real estate sectors have been afflicted by the crisis. Fortunately, the impact on the financial and economic performance of Cambodia have not been severe to due to the limited economic integration of the Cambodian economy to the global economy and on the strength of the country's economic fundamentals in the agricultural sector.

To strengthen the banking system, the National Bank of Cambodia (NBC) had taken the following measures to maintain the growth and soundness of the financial system: increased the minimum bank capital or reserve requirement, from KHR50 billion (approximately US$13 million) to KHR150 billion

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(approximately US$36 million); improved and strengthened banking regulations and supervision; increased the reserve requirement from 8.5% to 16%; curbed available credit to private sectors involving in high risk exposure activities; and set the ceiling for the real estate sector loans at the level of 15%. Following the crisis the government lowered the bank reserve requirement from 16% to 12% and also revoked the 15% cap on loans for real estates. These proactive monetary responses were aimed at keeping the economic momentum.

The fiscal authority in Cambodia introduced a stimulus package in order to maintain a stable and favourable macroeconomic environment amid the global crisis. It was aimed at supporting and stimulating growth to provide economic stability, especially in the management of inflation. In addition, the government expenditure policy was prioritised to increase public investment in physical infrastructure, including transportation, irrigation, agricultural enhancement facilities, and the like. To support this arrangement, the ministry of economy and finance reviewed its current budget and rationalised its spending to help stimulate the economic recovery.

The Royal Government of Cambodia has continued implementing prudent and flexible policies to maintain low inflation rate and ensure financial stability. The government has also emphasised close cooperation between the NBC, the monetary authority, and the Ministry of Economy and Finance (MEF) to facilitate successful implementation of the monetary policy. The NBC will further enhance its financial and banking supervisory roles to ensure a healthy banking system in the country.

Financial stability is a broad and contemporary topic and there appears to be a broad consensus for mandating the financial stability as a role of the central bank. This is not yet a legal mandate of the NBC whose main function is defined as the monetary authority for maintaining price stability. Although financial stability is not stipulated in the law, the role of the NBC is likely to fall through the crack. This is in line with the argument of Subbarao D., (2010). He said that "financial stability is a necessary, although not a sufficient condition, for achieving the conventional central bank objectives relating to inflation, output, and employment". In addition, as a guideline for financial development, Cambodia has its 10-year strategic plan called the "Financial Sector Development Strategy (FSDS), 2006-2015." This strategic plan has been the output of a joint effort of the NBC, the MEF, and other key stakeholders. The objective of this plan is mainly to support the development of a sound market- based financial system for resource mobilisation, effective financial resource allocation, and broad-based sustainable economic growth.

The objective of this research is firstly to survey the necessary infrastructures and supporting facilities that are available for the effort of maintaining financial stability in Cambodia. As there is no financial stability framework in place, this research is structured to provide the main areas deemed necessary for financial stability in the country. Secondly, the sources of potential risks in the financial system are also addressed to gain some understanding of the level of risks that may trigger financial instability. Thirdly, since the topic is the proceeding of the 45th SEACEN governors' conference in Siem Reap, Cambodia, the research findings will be presented an input for the purpose of sharing Cambodia's experience and lessons learned. Finally, the recommendations and conclusion will be drawn to highlight the areas deemed necessary in maintaining financial stability in the country.

2. Factors Supporting Financial Stability in Cambodia

2.1 Background of Financial System

An appropriate historical description of the Cambodian financial system should begin following the collapse of the Khmer Rouge regime. At the end of the Cambodian conflict, the nation underwent a period of reconstruction and reform which spanned nearly 30 years, re-building everything from scratch, including the financial system. Cambodia faced a number of challenges that required collective and strong efforts from the government and its people. The infrastructure reconstruction effort was hampered by the limited government budget. The bulk of the resources were devoted to human resource development, country-wide road construction, public goods and services provision, and the like. The financial sector development faced a huge challenge in the context of Cambodia's post-conflict demography as a result of the Khmer Rouge regime. Building public confidence in the financial system is very challenging for the government and for the other financial participants.

Cambodia initiated the reform of its banking and financial institutions, with the enactment of the law on Banking and Financial Institutions in 1999. The reform was aimed at restoring public confidence in Cambodian banking sector in order to stimulate saving mobilisation to support the real sector productivity (Chanto, C., 2001). It enabled the NBC to sort out the unviable commercial banks and re-license the banks that were viable in term of their capital, operations, and management structure. Thus, the development of the banking and financial sector established the foundation of the financial system.

The Cambodian financial system includes non-banking institutions, their operations are yet fashionable and flourishing. Historically, non-banking operations were seen only in the form of insurance sector, which was first incorporated in the insurance law of the Cambodia National Insurance Company (CAMINCO) as a state-owned enterprise in 2001. CAMINCO's actual operations started in 1993 to provide insurance services to the public. At that time, insurance services were practically non-existent as the public had no awareness of the existence of insurance services that were monopolised by this state-owned company. Since then, the company has been privatised with its current share holding held exclusively by the private sector.

Another important feature of the Cambodian financial system is the highly, though not fully, dollarised economy. Other currencies being used along with the riel and US dollar are the Vietnamese dong and Thai baht, which coexist near the border of the two countries. Dollarisation in Cambodia is not the result of a policy decision, but rather it happened due to erosion of public confidence in the national currency as a consequence of the economic collapse during the Khmer Rouge regime. Another contributor of the dollarisation practice in the country was the huge US dollar inflow for the United Nation Transitional Authority in Cambodia during 1991-1992 (Nay Im, T.; Sokha, N.; and Dabadie, M.). A significant benefit of dollarisation is that it facilitates the integration of Cambodian trade with the international economy. The lower currency conversion risk, resulting from dollarisation, has also promoted macroeconomic stability and a more predictable business environment. However, the high level of dollarisation undermines the effective implementation of monetary policy and limits the utilisation of its instruments. Although the dollarisation emerges for some disadvantages to the country, the Cambodia government has not imposed de-dollarisation policy by immediate force. An explanation to this could relate to the fact that employing the de-dollarisation policy via promoting the use of the national currency is gaining positive momentum over the forcing policy.

2.2 Current Condition

The Cambodian financial system consists of the banking and non-banking sectors. The banking sector is predominant. Financial stability is, therefore, more to ensure the sound and healthy banking operations in order to avoid its disruption to the financial and economic situation. This paper will focus on the performance of the banking sector and highlight some of the developments in the non-banking sector.

In 2009, the insurance market comprised six direct insurance companies and one reinsurance company. The insurance sector is small and plays an insignificant role in the country's financial system, with total asset contributing to only about 0.73% to the GDP (Meatra I., 2010). Market awareness and demand for insurance products and services are low. Also, the public is not well educated on the value of having insurance coverage. The MEF, who is the regulator of this sector, is in the process of strengthening its regulatory and supervisory framework in order to facilitate the development of this sector.

Another non-banking sector is the money and capital market which is not yet operational in the Cambodian financial system. Currently, the already established regulatory body is in the process of developing an appropriate legal framework for the operation of the financial market. Cambodian finance market when operational will function to mobilise financial resources to support the needed investment growth. Both the financial market regulators and the potential market participants are gearing their preparations for the launching of the Cambodian financial market. Thus, the potential risks of concern to the financial system may emerge with the operation of the financial market.

In banking sector, the Cambodian banking system consists of 27 commercial banks, 6 specialised banks, 20 licensed microfinance institutions, and 26 registered rural credit operators (NBC, 2009). Those institutions are prudentially regulated by the NBC in order to ensure sound and efficient performance of individual institution. The financial products and services offered by those institutions are loans and deposits and banking services such as foreign exchange, remittance, payments, and others. The financial instruments are basic and unsophisticated.

Despite the impact of the global crisis on the Cambodian financial and economic condition, total assets in the banking system grew by 20% in 2009, down from 24% in 2008. The growth of total assets was largely contributed by the new bank entrants and by growth in customer deposits. During 2009, three commercial banks were licensed. The asset quality reviewed on a quarterly basis was at a satisfactory level. However, there was a slight increase in non-performing loans in the banking sector from 3.68% in 2008 to nearly 5% in 2009. The impact of the global financial crisis on key sectors of the economy, such as textile, tourism, construction, and agriculture, contributed to this increase. Another reason for the increase in non-performing loans is associated with the introduction of a new guideline on credit classification at the beginning of 2009. This guideline prescribed more stringent criteria for recognising problem assets, and it resulted in a higher rate of problematic assets.

Despite the slowdown in the real sector of the Cambodian economy, the number of deposit customer and borrowers increased considerably in 2009 by 32% and 14%, respectively. The banking system was able to improve its solvency ratio to 32% in 2009 from 28% in 2008, due to reduction in the level of risk-weighted assets by banks in favour of low-risk assets. The injection of additional new capital by the new bank entrants also strengthened the capital base of the banking system.

The profitability of the banks was affected significantly by the global crisis. The return on equity ratio declined significantly from the peak of 16.58% in 2007 to 5.63% in 2009. The return-on-asset ratio declined by more than half from 2.88% in 2008 to 1.25% in 2009. The main causes of this reduction include slowdown of credit expansion, growth of non-performing loans, additional cost of accumulating customer deposits, and rapid expansion of branch networks.

Besides the banking and non-banking sector, instability to the financial system can emerge from outside factors (Santoso, W., 2007). An important aspect to consider is the economic factor, which mainly covers the real sector, including households and corporations. In Cambodia, this study is limited by the availability of data. This paper will present a broad and descriptive outline of the linkage between the real and financial sector. As a fact, the households in Cambodia do not engage in bank debt-financing to finance their property purchases and other consumptions. Thus, income decline does not have any significant impact on the assets of the banking system. Likewise, the corporate sector also does not rely much on financing from the banking system, but access funding from family, friends, and, sometimes, from the informal money market. According to NBC's bank supervision annual report, 2009, the credit extension was relatively diversified. The key sectors such as tourism, manufacturing, construction, and trade accounted roughly between 8% to 18% of the total credit of the banking system. Thus, the impact of the economic downturn in the key sectors on financial stability was light.

2.3 Organisation and Institution

Financial stability is an emerging paradigm for financial authorities to safeguard the financial system and activate their roles. Conventionally, the role of the central bank is to maintain price stability to facilitate economic development, particularly the macroeconomic soundness. The supervisory roles have been supplemented to the functions of the central bank. Some central banks have shifted or shared the regulatory and supervisory roles with other agencies. This practice dilutes the cohesive role of the central bank in regulating and supervising

the financial institutions. In Cambodia, price stability is determined as a core function of the NBC in addition to its supervisory roles on the financial institutions. These primary functions of the NBC are mandated by a law enacted on the organisation and conduct of the NBC, which was promulgated in 1996.

This paper addresses financial stability primarily in the context of the banking sector. The banking sector is categorised into commercial banks, specialised banks, microfinance institutions, money lenders, money changers and the banking business that raises similar risks to banks. These institutions come under the supervision of the NBC, while the financial market and insurance sector are under the supervision of the MEF. Even though financial stability is not mandated as a role of the NBC, the efforts and measures of the NBC are directed at maintaining financial stability. This section assesses the organisational structure of the NBC and its coordination with other institutions or authorities in supporting and maintaining financial stability.

The NBC is an independent institution, which is by law responsible for determining and directing monetary policy with the aim of maintaining price stability. At the apex of the NBC is the Board of Directors who are responsible for establishing policies for the operation of the NBC. This team is also responsible for issuing decisions, regulations, circulars and other directives to govern the business of the NBC. It also establishes internal rules and regulations. In addition, the NBC has a policy committee who is responsible for the country's monetary policy. This committee is chaired by the Governor and consists of NBC's senior officials at directorate level. Basically, this committee focuses on monetary policy in stabilising the macroeconomy as a whole.

The financial institutions surveillance functions come under the Consulting Supervisory Committee (CSC). This committee is chaired by the deputy governor and supported by senior management members of the supervision department and other relevant departments. It deliberates on-going and major issues pertaining to the financial institution surveillance functions, especially the technical aspects, before submitting the recommendations for the approval of the governor and importantly the board of directors. This committee is active in the micro-surveillance of the financial institutions which entails the task of monitoring and regulating the performance of financial institutions. As a result, the sound and efficient performance of the financial institutions contributes to the financial stability of the country.

The composition of the board of directors can be an important contributor to financial stability in that it facilitates the coordination and cooperation among

the related agencies. The composition of the board of directors is stipulated in the law on the organisation and conduct of the NBC. The board consists of seven members, including the governor, deputy governor, and five other members. The other five members comprise one representative from the head of the Royal government, one representative of the MEF, one member from the real economy, one academic and one representative of the NBC staff.

The financial surveillance of banking institutions now includes anti-money laundering and combating financial transactions for terrorism. This is because the effects of these activities may be harmful to financial stability as well. Without a proper prevention and detection system, financial resources mobilised from unlawful activities may be laundered through the financial system to support terrorism activities. Towards this end, the NBC established another body called the Financial Intelligence Unit (FIU) with the responsibility of implementing the law on Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT). This body is beneficial in detecting any activities that are aimed at laundering unlawful money or providing financial resource for terrorism activities. Thus, this new phenomenon appears to be important in maintaining the financial stability in the country.

Human resource, efficient and cohesive organisational structure, IT infrastructure, payment system, and international relations make up the supportive structures of the NBC in preserving financial stability. First, NBC faces human resource constraint in the development of the financial system and performance of the financial institution supervision function. The growth of financial institutions, especially commercial banks and microfinance institutions requires the performance of more surveillance activities to ensure the sound and efficient performance of these institutions. NBC is in need of adequate and qualified, professionals with the relevant technical skills. Second, the organisational structure of the NBC is quite comprehensive and covers most of the necessary functions of the Bank as stipulated in the law. Also, the structure has been developed in light of the prevailing stage of development of the Cambodian financial system. There is yet no emphasis placed on the financial stability role or any structure defined for its performance. The responsibility for financial stability function is borne by the departments whose work in the designated areas has a bearing on financial stability. The Banking Supervision Department (BSD) is tasked with the function of micro-surveillance and its role is to ensure the sound and healthy performance of individual financial institutions. The task of Economic Research and Statistic Department (ERSD), on the other hand, is focused on macro-surveillance through its research and study of the monetary and economic aspects. Therefore, as far as the financial stability is concerned,

it is important for NBC to establish a body dedicated to the tasks of the financial stability.

Third, the IT infrastructure is supportive of financial stability in a way that it facilitates some sophisticated analytical tools to be developed through high standard application packages. Also, the transmission of the important and urgent information can be processed in a timely manner. The NBC employs a moderate level of IT infrastructure where an in-house IT team support all the requested needs of the various departments. In particular, the supervision department developed its own in-house application programme to monitor the financial condition of the financial institutions. Additionally, the hardware infrastructure has been put in place for better data processing and storage.

Fourth, the development of the national payment system is in the pipeline. The conventional payment system, not as sophisticated as that of the neighbouring countries, has functioned well for clearing and settlement purpose. The forthcoming national payment system which is purposed to provide an efficient and effective payment system to the public as well as the government agencies, will handle most of the sophisticated clearing and settlement transactions. Thus, the new system will contribute to the financial stability by which it helping to facilitate and secure the payment transactions.

Last but not least, international relations have also played a crucial part in supporting the financial stability of Cambodia. That is, by ensuring the proper and on-time moving forward with other countries and major development agencies, the NBC is able to ensure the financial system in a cautious manner. In this regard, the NBC is actively committed in collaborating with other countries and developmental organisations such as IMF, World Bank, ADB, SEACEN, and other ASEAN members. This mechanism has provided a vehicle for updating and sharing of experiences and support amongst the participants. Also, it may address the interconnected financial transactions that may be harmful to particular countries or regions. Therefore, international collaboration and relations can serve as an instrumental input to the effort of maintaining the financial stability.

2.4 Regulations and International Compliance

Pertaining to the safeguarding of the financial system, there are a number of laws and regulations established to support the legal framework of financial intermediaries. As the banking sector is dominant in the Cambodian financial system, the law and regulations are more developed in this sector, as compared to the non-banking sector which includes the insurance and financial market.

The NBC, as a banking system regulator, has established laws and regulations to strengthen micro-prudential supervision.

Banking operations in Cambodia are primarily governed by the Law on Banking and Financial Institution, which was promulgated in 1999. The law has served as a regulatory framework for the banking system in addition to regulations which are periodically issued to regulate the banking sector. The regulations are mainly focused on the area of licensing, capital adequacy, solvency, liquidity, banking operations, credit information, accounting rules, auditors, internal control and governance. Moreover, the legal framework has been extended to cover on the law on Anti-Money Laundering and Combating the Financing of Terrorism and the law on Negotiable Instruments and Payment Transactions. The law is further intended to safeguard the financial transactions and payment system in the country. However, the payment system, which contributes to the soundness of financial system, has been undergoing reform in the areas of the regulatory framework and tools and adoption of best practices to enhance the efficiency of the system. All in all, the legal framework of the banking system in Cambodia has gone through extensive development and improvement.

The adaptation of international regulatory standard is given the highest priority in the banking regulators' efforts. Yet, there is a need to understand and adapt the standard to the country's existing institutional and financial background. The Basel accord has led to the adoption of regulatory standard for micro-prudential supervision of Cambodian financial institutions. While Cambodia is committed to implementing Basel II, at this point of time, it is unable to fully comply with all its requirements. According to IMF's assessment, the constraint is due to the fact that the banking system in Cambodia is still at a developmental stage and requires more innovations and enhancements to strengthen public confidence and the regulatory and legal framework. Moreover, the lack of statistical data and limited human resources make it challenging for the NBC to successfully implement the Basel II.

In regards to the non-banking regulations, the law on insurance was passed in 2000 and the necessary regulation for implementing that law was adopted in 2001. Since then, a series of the regulations have been issued in dealing with licensing, capital requirements, accounting rules, and provisional requirements. Although the regulatory system is still rudimentary, it has provided a regulatory framework for the operation of the insurance sector in the country. Further work is needed to develop the supervisory function to strengthen the role and power of the supervisor, enhance corporate governance of the insurance companies, and define a proper process for dealing with troubled companies.

Even though insurance operations play a small part in the Cambodian financial system, this sector can affect financial system stability. Thus, the relevant law and regulations are needed and are required to be updated on on-going basis to accommodate current as well as future needs of the sector.

As part of non-banking sector, the financial market which is provided in FSDS, 2006-2015, is not yet in place. The financial market is the market for tradable financial instruments such as government bills, notes and bonds, and company shares and bonds. The market also comprises the money/interbank markets and capital markets. The regulatory framework for the financial market is covered by the FSDS, 2006-2015. Those regulatory areas include company law, civil code and commercial contract law, taxation, insolvency law, competition law, banking law, and dispute resolution system. Most of these regulations are in the work in progress stage. The financial market, on the other hand, has established the regulatory framework under the authority of the Security and Exchange Commission of Cambodia (SECC). This regulation is fundamentally for the operations of the stock market and the participants.

3. Addressing Risks to Financial Stability

3.1 Risk Identification

3.1.1 Credit Risk

Credit risk is a dominant concern in the Cambodia banking operations due to conventional financial intermediation. Bank lending to borrowers is funded from customer deposits. To monitor the credit risk that potentially emerges in the banking industry, individual banks are required to submit monthly report providing necessary information related to their large credit exposure, loan to related party, loan concentration by industry and borrower, credit classification, and doubtful and uncollected loans. The reported information enables the supervisor to understand the position of individual bank in regard of their lending activities.

In addition, the information is stored in the database system of off-site banking supervision called COBRA (Cambodian Offsite Bank Report for Prompt Corrective Action). This in-house developed system allows the banking supervisor to generate monthly progress report to identify any abnormal indication of the bank's lending. The indicator needs to comply with applicable regulations set for ensuring the bank's lending capacity and its accounting classification and provision. Moreover, the banking supervision also tracks and analyses major leading indicators

of the credit risk, such as NPL to total loan; NPL to total asset; classified asset to total loan; classified asset to total asset; loan to related parties to total loan; large exposure to total loan; general provision to total loan; specific provision to NPL; and loans to deposits. These indicators are produced for both individual and aggregate level.

Furthermore, to assure accurate reporting by the banks, the on-site supervisor verifies bank submissions with the supporting documents and confirmation of the banks. Basically, the on-site team employs CAMELS (Capital, Assets, Management, Earnings, Liquidity, and Sensitivity to Market) model for on-site examination. This provides supervisors with an understanding in regard of the bank's operations under each head of the CAMELS model. Concerning credit risk pursuance, this model allows the supervisor to check credit performance under the coverage of asset quality.

Thus, the banking supervisor has a clear structure of identifying, measuring and analysing the credit risk of individual bank and the whole system. This approach is fundamentally compliance-based due to some restriction of supervisor capacity and supporting infrastructure.

3.1.2 Liquidity Risk

Liquidity risk is quite prominent in the Cambodian banking system. It may primarily be due to the limited public confidence in the banking system as embedded from the country's unfortunate history. Bank-run is also a concern to both bank managers and regulators. Even though individual banks and financial institutions have proven their ability to self-manage their respective risk, the supervisor is focused on individual bank's risk appetite and management principles where these are not well managed. This is due to the fact that a liquidity shortfall at a single institution can have system-wide repercussions (Greuning, H. and Bratanovic, 2003).

In day-to-day operations, the NBC monitors liquidity in the banking system through various indicators pinpointed to the condition and severity of the liquidity risk. Fundamentally, the supervisor regularly monitor the aggregate liquidity position in the banking system through such indicators as liquid assets to weighted customer deposits; breakdown of assets and liabilities; maturity gap of assets and liabilities; the number of depositors; and the amount of classified deposits. At the aggregate level, the stress test has not yet been applied to analyse the performance of the banks and the banking system under specific scenarios. Yet, some major banks might have performed their own stress testing.

3.1.3 Operational Risk

The important types of operational risk involve internal control and corporate governance. Another aspect may include the major failure of information technology system (Basel, 1998). The operational risk can trigger other type of risks such as counterparty, liquidity, reputation, or legal risk. At the aggregate level, the Cambodian banking system is more exposed to the operational risk. The sound and effective risk management framework has not been significantly developed in the sector. However, several major banks have implemented some sound operational risk management practices.

The NBC established internal control and corporate governance regulations in pursuit of promoting sound and efficient banking industry practices. To monitor the compliance of the regulation, the supervisor requires the banks and financial institution to report on their organisation structure, board of directors, policies, management procedures and other necessary documents for assessment whether they have sound and efficient operational control and good governance. The monitoring is regularly followed up by on-site surveillance of the individual bank and financial institution.

3.1.4 Market Risk

Cambodia is without money and capital market and the inter-bank market. The important market risk in the Cambodian context is in the real estate sector. Asset price fluctuations in the market could somehow trigger the banking system. The assessment and analysis of assets price movements, however, are limited by the availability of data. The Banking Supervision Department is able to analyse the position of the individual banks in relation to their large exposures and lending concentration, which indicate the level of exposure of the individual banks to the movement of asset price in the market.

3.1.5 Exchange Rate Risk

Due to dollarisation happens in Cambodia economy, the banks normally hold their foreign exchange position in which it could somehow have a negative impact when the exchange rate fluctuates. In most cases, deposits in the banking sector are in US dollar and the lending rate is also denominated in US dollar, except for microfinance institutions whose lending is required mostly in Khmer riel. However, the proportion of microfinance institutions' lending is significantly lower than that of commercial banks which, as of December 2009, stood at 11% and 89%, respectively.

It is provided in the regulation that the net open position of individual banks should not exceed 20% of their net worth. This is to limit the huge loss of the bank when facing unfavourable exchange rate. The bank supervisors regularly monitor this indicator on a monthly basis. Regarding convertible risk, it may not a major concern to most of the foreign business owners due to Cambodia's highly dollarised economy.

3.1.6 Interest Rate Risk

Interest rate risk is not really a major concern to banking operations. This is mainly due to the absence of money and capital market and the inter-bank rate. The interest margin may be an important factor to determine the profitability and the solvency of the banks. However, banks mostly tie their lending rate to the deposit rate. Thus, in this sense, the interest rate may not have a major impact on the banking system as the interest rate spread is rarely negative, even though the high competition and credit risk could lessen the interest margin.

Currently, there is no stress-test scenario performed to gauge the impact of interest rate movement, though some major banks may perform individual stress test to understand their risk absorption capacity. At the aggregate level, the supervisors monitor the effect of interest rate risk via such indicators as net interest margin to total assets; assets and liability interest rate gap; and maturity gap. These indicators allow the supervisors to compare and analyse the trend of interest rate in light of the profitability and capital position of the banks.

4. Crisis Prevention

As Cambodia is without a financial stability framework, the preventive efforts are distributed and shared by the different authorities. The role of central bank is important in preventing the emergence of potential risks in the banking sector while the MEF takes care of the insurance sector. The absence of stock market in Cambodia simplifies the complexity and potential risks to the financial stability. However, it restricts the mobilisation of financial resources for the benefit of economic development.

Prior to explaining the preventive effort in the banking sector, it is important to understand the insurance sector. Importantly, insurance is an integral element in supporting the economic activities of the country in the way that it can transfer risk of an insured person or entity to an insurance company who can better deal with risk management. The Cambodian insurance sector has not shown robust growth since its establishment. In FSDS, 2006-2015, it is provided that the growth

in the insurance sector depends upon the availability of discretionary, disposable income and personal choice. Additionally, consumer confidence is critical in the promotion and marketing of insurance services. There are a number of factors contributing to consumer confidence in using insurance services. The foremost factor is public understanding about insurance services and their benefits. Claim submissions should also be processed in a prompt manner. Settlement of claims must always be in conformity with the terms of the policy and executed in a fair and transparent manner. Thus, these could help increase the insurance businesses as a non-bank financial activity.

Moreover, since the insurance business volume is still considerably low, the preventive effort in the insurance industry has been through the development and strengthening of the regulatory framework. The regulatory framework that has been developed consists of the licensing rules, capital (solvency) requirements, and accounting requirements, including the computation of provisions for amounts outstanding under claims (FSDS, 2006-2015). Furthermore, the supervision of insurance companies is being carried out in accordance with proper procedure to ensure the sound and efficient operations of the insurance industry. The insurance companies are required to submit complete financial statements and auditor's certificate yearly to the MEF. In addition, the companies are to complete a special prescribed form developed by a working group of ASEAN insurance supervisors. The detailed supervisory process of insurance companies involves the collection of statistics, analysis of the data collected and follow-up on the findings. There is provision for an on-site inspection team, but the inspection procedure is yet to be completed. There are further needs for comprehensive training programmes, management information system and IT support for the inspection team in order for it to carry out its duties professionally.

In short, the Cambodian insurance sector is at a very primary stage where effort in developing regulatory framework as well as strengthening supervisory role is pre-conditioned. Also, the preventive effort should hand in hand with the monitoring and supervision of the insurance companies.

The role of the NBC is important in crisis prevention although this responsibility is not mandated. NBC does not have a well defined crisis management/framework or a preventive mechanism in dealing with possible crisis. However, the preventive efforts are reflected in the work of two dedicated teams in tackling macro-prudential and micro-prudential surveillance.

Macro-prudential surveillance is mainly conducted through research and analysis of the macro aspects. This role is performed by the ERSD. The

department is primarily responsible for the study and research of both national and international financial and economic condition. It produces the statistical reports, namely, the quarterly balance of payment and the monthly economic and monetary statistics. The reports provide the public a comprehensive outlook of the Cambodian financial and economic condition. Specifically, the economic and monetary statistics disclose information about consumer price index, exchange rate, money supply, net domestic and foreign assets of the banking sector, banking deposit, and also data of foreign tourists, while the balance of payment provides the information about the current, capital, and financial account and the international investment position in the country. The statistics fundamentally cover the macro aspects of the Cambodian financial and economic situation.

Moreover, the ERSD intensifies the research capacity of financial and economic condition in order to create conducive recommendations and inputs for top monetary decision makers. It also helps identify the vulnerable areas, which may impact the Cambodian financial system. Through macroeconomic indicators such as economic growth, inflation rate, exchange rate, money supply, balance of payment, the team provides an early warning to management to understand and initiate preventive measures. Also, the research and analysis done by the department can provide the policy makers the inputs necessary for conducting monetary policy. Thus, the department serves as an important role in intensifying the researches, early indicating the vulnerabilities, and cooperating with the monetary policy directors to prevent the potential risks that emerge to the Cambodian financial stability system.

Micro-prudential surveillance is about preventing individual financial institutions from being exposed to risks that affect their sound and efficient operations. Basically, banking operations of the financial institutions come under the oversight of the BSD, whereas the payment and settlement system is under the control of the exchange department. Given that the national payment system is undergoing development and risk to the payment and settlement system is not an issue of concern, this paper does not cover this area. The focus is on the area of banking operations. The surveillance tools encompass the regulatory frameworks for banking operations, the on-site and off-site surveillance, and licensing and de-licensing of the financial institutions. However, the supervisory authorities cannot guarantee that banks will not fail. The potential for bank failure is an integral part of risk-taking (Greuning, H. & Bratanovic, 2003).

The regulatory framework serves as a preventive tool to protect the financial system against disruption. If the regulatory framework does not sufficiently cover or appropriately address the financial development in the country, there is a

possibility that the financial institutions may enter into regulatory arbitration. As a consequence, it affects the financial system stability and efficiency. In particular, the regulatory framework is aimed at ensuring compliance to the issued regulations and healthy financial performance of individual financial institutions. Importantly, the regulations are strengthened to assure the operations of the financial institutions are aligned to international standards and adjusted to meet local needs. The development of the Cambodian financial regulations is basically seen at a proactive manner, which means the regulator detects the significant risks of the financial institutions by imposing its entrusted foreseeable regulatory restrictions.

Inputs for the development of regulations come from various sources. Macroeconomic analysis compiled by the ERSD provides the information updates on the financial and economic trends prevailing in Cambodia and the international economy. This input is channeled to the top management and the senior members of the CSC as feedback for regulatory policies. Then, there are the key risks captured by the regular micro-prudential indicators of banks and financial institutions produced by the BSD. The financial indicators of individual institutions identify the vulnerability and severity of the risk that may affect the financial system stability, and it is for the regulatory development to appropriately address the potential micro- and macro-systemic risks that trigger the Cambodian financial system.

5. Crisis Resolution

5.1 Enhancing Collaboration and Coordination

It is a good idea of having different authority and stakeholders working together for the benefit of harmonisation. The collaboration among different authorities could be done in a broader scope as the experience provided by the Royal Government of Cambodia during the recent global crisis. The government called on NBC for its monetary actions, MEF for fiscal strategies, and also other ministries to support the growth of real sectors. This action provided Cambodia with a harmonised resolution.

Having met with various authorities, it can provide a chance to discuss specific issues and barriers, to share information where necessary and possible, and also to ensure an adequate contingency plan to protect the financial system. As a case of Cambodia, the NBC formed its board of directors with diverse mix of representatives. They are the representatives from the Royal government; MEF; academia; the real sector; and the NBC's staff itself. This provides a

good chance to harmonise ideas, share information, and establish a conducive policy.

Even though there is no arrangement for the authorities to focus on financial stability, the cooperation through various forums and meetings allows the fiscal and monetary authorities, the NBC and MOEF, to develop strategies that can stabilise the macroeconomy. The NBC and MOEF are on the same blueprint for financial sector development strategy. This road map allows the two authorities, with different working groups, to share and exchange information and ideas on financial sector condition and development.

5.2 Financial Safety Net

It is essential to the stability of the financial system to maintain monetary stability in order to sustain economic growth. As the banking sector predominant in the financial system, the financial safety net needs to cover the banking system. As provided in FSDS, 2006-2015, the financial safety net comprises of four important elements: (i) Lender of last resort; (ii) Regulation and supervision; (iii) System for addressing problem bank resolution and insolvency; and (iv) Depositor protection.

(i) Lender of Last Resort (LLR)

This facility is designed to provide emergency liquidity to solvent banks facing bank runs or liquidity shortage. NBC's extension of overdraft to support liquidity shortage of banks and financial institutions amidst the global crisis is a recent example. Since Cambodia is dollarised economy, it is not possible to have a lender of last resort in the true sense. A clear policy to regulate the operation of the LLR has not yet been defined. The FSDS 2006-2015, does not provide for the NBC to extend financial support to financial institutions under the prevailing circumstances. The support that comes in the form of subsidy or government bailout is required to bear the government's approval. Yet, the recent facility provided by the NBC is a part of its integral strategy during systemic crisis.

(ii) Regulation and Supervision

This point emphasises the effectiveness and independence of the supervisors. This is important to ensure the power of the supervisor in dealing with other agencies in pursuit of banking supervision. The NBC is enhancing the role of regulator and supervisor in order to strengthen its micro-surveillance function.

(iii) System for Addressing Problem Bank Resolution and Insolvency

This is work in progress. It is important for the authorities to identify the potential problem banks and to provide for a contingency plan designed for dealing with any future bank problems or failure.

(iv) Depositor Protection

It is good for Cambodia to have a deposit insurance scheme for the benefit of customer protection. However, it may create moral hazard in the system. This scheme has not yet been implemented and is an issue for future consideration, specifically in the medium term (FSDS, 2006-2015).

6. Supporting Tools for Monitoring Financial Stability

As mentioned above, the Cambodia financial system is traditional and rudimentary. The supporting tools for monitoring financial system stability are applied mostly in the banking sector. In the absence of stress testing, financial stability index, and other explicit monitoring tools, the NBC, as a primary financial stability monitor, employs such fundamental tools as macroeconomic indicators and micro-prudential indicators (early warning system).

According Knight, M. (2002), the financial system stability and broader macroeconomic performance are intimately linked. Thus, a sound macroeconomy is important for maintaining financial stability. The NBC, through the inputs provided by ERSD, compiles the macroeconomic indicators for the evaluation of the macroeconomic condition and its soundness. The assessment of the financial system relies mostly on the use of basic statistical analysis and certain assumptions to the information or data gap. The indicators are also crucial for the purpose of policy recommendation. The regularly published macroeconomic indicators provide early warning signals and indication of vulnerability in the financial and economic system to the policy makers as well as the relevant stakeholders. Despite the absence of sophisticated modeling techniques, the conventional tools in use are adequate in light of the current stage of the Cambodian financial system.

The early warning system employed is an important monitoring tool to assess the financial institutions' performance and condition. The early warning indicators capture the important micro-prudential indicators, which cover most of the financial soundness indicators provided by the IMF. At the aggregate level, these are compiled to provide the macro-prudential indications for highlighting the aggregate risk exposures in the financial system. The indicators are important

for the banking supervisors in identifying the major vulnerable areas that may potentially cause systemic risk to the system.

The banking sector consists of three categories - commercial banks, specialised bank and microfinance institutions. The BSD is divided into three divisions. The on-site division and off-site division co-supervise the commercial banks and specialised banks, while another division supervises the microfinance institutions. This classification allows the respective divisions to carry out surveillance and comprehensive research to evaluate the condition of the individual financial institutions and to detect and appropriately address the potential risks that may appear in these institutions when they are at the early stage.

Off-site surveillance is basically monitoring the condition of individual banks to spot potential difficulties, identify risks threatening the banking system, and check for compliance with the laws and regulations. The assessment allows the supervisors to compare with their peer groups and the overall banking sector in order to detect significant deviations from the peer group or benchmarks. It also provides an early indication of an individual bank's problem as well as systemic problems. The data management team maintains an off-site surveillance system (OSS), which is used by the micro-analysis team. There is also a macro-study team that performs an oversight function to the report generated from this system. The reports comprise basically liquidity, capital adequacy, credit risk, asset quality, concentration of large exposures, interest rate, earnings and profitability, and balance sheet structure.

According to Greuning, H. and Bratanovic (2003), off-site surveillance allows supervisors to systematically monitor developments concerning bank's financial condition and risk exposures, it also has its limitations, specifically:

- The usefulness of reports depends on the quality of the bank's internal information systems and on the accuracy of reporting.
- Reports have a standard format that may not adequately capture new types of risks, or particular activities of individual banks.
- Reports are not able to sufficiently cover all the factors affecting risk management, such as the quality of a bank's management personnel, policies, procedures, and internal system.

The risk-based supervision approach is still in the pipeline.

On-site surveillance of commercial and specialised banks is performed by the on-site division on the basis of a regular yearly plan approved by the director

general. The selection of the banks for examination depends on the composite rating of the previous inspection and the banks' risk appetite that potentially have systemic impact on the financial stability. Specifically, the tool used for on-site surveillance is CAMEL, which is a rating system to rate the individual components of a bank: Capital, Assets, Management, Earnings, and Liquidity. CAMEL provides a comprehensive assessment of all the financial aspects that are important to a bank's soundness, and provides an indication of the level of risk at any particular bank. There are five composite ratings provided in this tool, rating from 1 (Strong); 2 (Satisfactory); 3 (Fair); 4 (Marginal); and 5 (Unsatisfactory). The rating system is subjective in the state that human judgment must be used to determine the CAMEL components and composite ratings.

By conducting on-site examination, the supervisors are able to diagnose the exact cause of a bank's problems to an adequate level of detail. It specifically helps the supervisors assess the accuracy of a bank's reports, overall operations and condition, quality and competence of management, adequacy of risk management systems, and the internal control procedures. Also, the form of on-site examination can be taken differently according to the bank's size and structure, sophistication and risk profile as well as availability of resources. It can be done in full scope (all components of CAMEL) or targeted scope (selected components of CAMEL).

Concerning the monitoring of microfinance institutions, the on-site and off-site examination is conducted by the microfinance supervision division. The approaches and strategies are not different from the examination conducted for commercial and specialised banks. The important aspect focused on is the requirement for the operations of the microfinance institutions to concentrate on their target group of low-income people. Thus, it allows the NBC to keep tap on the lower part of the society, which is also an important element in the financial system.

Figure 1
Micro-prudential Indicators and Macroeconomic Indicators

Micro-prudential Indicators	Report Frequency	Macroeconomic Indicators	Report Frequency
Capital Adequacy Solvency ratio Net worth	Monthly	Balance of Payment ➢ Balance of Payment Summary ➢ Goods Account ➢ Services Account ➢ Income Account ➢ Current Transfer Account ➢ Capital Account ➢ Financial Account ➢ International Investment Position ➢ External Debt ➢ Balance of Payment Ratios	Quarterly
Assets Large exposures Related party lending Fixed assets to net worth Net Open Position Classified loans/total loans Allowance for loan losses/classified loans	Monthly		
Management Shareholders' support Quality of management Quality of internal control	On-site examination (yearly plan)	Economic and Monetary Data ➢ Consumer Price Index ➢ Exchange Rate ➢ Monetary Survey ➢ Monthly Change of Monetary Survey ➢ Composition of Money Supply ➢ Liquidity ➢ Credit Granted Classified by Economic Sector ➢ Credit Granted by MFIs and NGOs ➢ Riel-Denominated Cheques Cleared through Clearing House ➢ USD-Denominated Cheques Cleared through Clearing House ➢ Visitor Arrivals in Cambodia ➢ Cambodia's Imports and Exports	Monthly
Earnings Efficiency ratio (Overhead /Operating profit) Return on Assets Return on Equity	Monthly		
Liquidity Liquidity ratio Cash and non- classified interbank assets/Total assets Loans / deposits	Monthly		

7. Assessing Financial System Stability

Given the predominance of the banking sector, financial system stability is primarily dependent on the banking sector.) However, it does not mean that macroeconomic stability is not necessary to maintain financial stability. According to Santoso W. and Batunanggar S. (2007), any potential risk occurring from defaults or negative developments in the real sector, such as increase in unemployment, house price bubbles, or unsustainable households and corporate debts, may translate to affect the financial sector, thus endangering the system's stability. There is an important need to maintain a stable macroeconomic environment in the pursuit to attain financial system stability.

Importantly, the banking sector is more advanced in terms of prudential supervision and regulatory framework, and supportive infrastructure and system, comparing to the existing non-banking sector, which is the insurance sector. As provided in the FSDS, 2006-2015, there will be an intensive development in insurance sector in the area of regulatory framework, supervisory strategy and approach, customer protection and awareness, and the like. In the blueprint, the banking sector and payment and settlement system will be on the way to advance their position. This is to cope with a growing number of banks and financial instruments in the market as well as the coming operations of money and capital market in the country. Thus, to maintain financial stability, the existing tools, leading indicators, regulatory and supervisory framework and other supportive functions need to be sufficient and proactive.

The micro-prudential supervisory framework is limited due to several factors, such as human capability, IT infrastructure, lack of focus on forward-looking approach, and limitation of approach in addressing potential risks. The NBC is open to adopt international standards and practices to facilitate the growing operations of individual financial institutions as well as maintain financial stability for the whole system. However, this needs to be done in a gradual way to accommodate the pace of Cambodian financial and economic development, and importantly, to commensurate with the available infrastructures and facilities.

Regarding macro-surveillance, the macroeconomic indicators are important for pinpointing and identifying the potential sources of threats to financial system stability. However, the indicators may provide a slower response than micro-surveillance tools. Meanwhile, fiscal and monetary policymakers want to utilize these indicators for their policy decisions. While the indicators can provide useful signals, more comprehensive and broader analysis/(leading) indicators are necessary. In addition, the construction of these indicators should be published

in a timely manner for the benefit of the public. Also, the data gap may need to be correctly addressed in order to ensure data integrity and information accuracy.

Since the financial stability report serves as an integral means for public understanding about the financial system, the absence such a report could limit consistent and entrusted information. Even though the respective authorities are authorised to publish their respective reports within their mandates, the public information on financial system stability should be consolidated and presented in a single document. This will allow comprehensive information to be available to the public. The process can be well managed provided there are proper procedures/protocols for information sharing and policy consolidation.

Crisis management is likely to fall under the role of the NBC. The crisis management framework consists of two necessary elements, which are crisis prevention and crisis resolution. Crisis prevention is important in that it provides the available tools and mechanism for the stabilising of the financial system. As mentioned above, in Cambodian context, the extensive preventive mechanism was conducted through micro- and macro-prudential surveillance on financial institutions (basically the banks); while for the real sector, this was limited to the imposition of prudential surveillance and intensifying of research. Fundamentally, the financial sector, both bank and non-bank, have placed more focus on the development of regulatory and supervisory framework despite the limited availability of the tools and approaches. On the other hand, crisis resolution has remained limited to just the basic crisis resolution protocol or framework that allows the NBC and other authorities to collaborate and coordinate among each other. Even though the joint efforts can be established for the purpose of crisis resolution, there is a need for concrete policy and procedures in order to facilitate a quick response to reduce the contagion of emerging risks. The LLS function performed by the NBC was limited in a true sense. Thus, the supportive facilities of both monetary and fiscal authority are integral for crisis resolution. Proper coordination among different authorities through clear procedures and harmonised protocols is essential.

8. Conclusion and Recommendations

The first consideration is about the role of financial stability. Even though it is not mandated in the NBC's role, it is most likely to be the primary institution responsible for financial stability. It should be clearly specified in the role of the NBC so that it can legitimately exercise its authority over this important function. Also, there is accountability and transparency alongside the deployment of the

supporting tools, policies, procedures, and protocols. The national financial stability framework can be properly established in order to involve the responsibility and participation of the all relevant stakeholders.

Secondly, the micro-prudential regulatory and supervisory framework should be strengthened by taking into account the experiences from recent global systemic collapses and the financial and economic trends in the country, region, and the globe. The interconnectedness of financial transactions creates cross-border issues. This issue will emerge in Cambodia when the financial market and payment and settlement system go live. Also, the international compliance standards (Basel core principles, IFRS, etc.) should be adopted in a proactive manner. In addition, it is important to enhance the research and surveillance function of respective entity under the regulatory framework defined for financial stability. This can enable the financial system to be more protective and less exposed to systemic risks.

In order to succeed in its mission, it is critical for the authority, particularly the institution in charge of financial stability, to enhance and calibrate the supporting tools and infrastructure (basically, the human capacity, IT infrastructure, monitoring and analysis tools, and the like) for maintaining the financial stability. In the absence of the supporting tools and infrastructures, the systemic risks can potentially trigger the financial system stability. The potential micro- and macro-systemic risks, threats, vulnerabilities, should be addressed by means of a preventive mechanism in a timely and accurately manner.

Since the financial safety net is an integral part of financial stability, it is necessary to design a concrete framework for securing the financial stability. The role of the lender of last resort is performed by the NBC to secure the solvent financial institution's liquidity. This facility is one component of the financial safety net. However, to ensure that this facility is truly beneficial, an important consideration is the credible judgment of the supervisory function for an institution's solvency position. Otherwise, this may reduce the efficacy of the safety net in case of a liquidity emergency.

Another important element is crisis management framework. It is important to define the roles and responsibility for dealing with crisis prevention and resolution. Also, the process of collaboration and coordination among the various stakeholders are to be set out in a clear plan, policy and procedures.

Financial stability is increasingly important given the experience of the recent global crisis. The design of the financial stability framework requires a national consensus in light of regional and international experiences and relevant financial

and economic development considerations. The potential risks that may trigger financial stability are categorised into micro- and macro-systemic risk. The risk appetite and profile vary from one country to another. The contagion of individual risk may transfer across sectors or even border due to the interconnectedness of financial transactions.

The Cambodian financial system remains conventional, but it is making progress and has potential for it to be transformed into a complicated and diversified financial system. The financial stability role is likely to be assumed by the NBC although it is not a mandatory one at this point of time. The potential risks that may affect its financial system are principally credit, liquidity, and operation risks. The market, interest rate, and exchange-rate risks are presently not significant due to the absence of a financial market and operation of a less sophisticated payment/settlement system. The supporting tools and infrastructures for monitoring financial stability remained limited despite some forward movement. The financial safety net is restricted to the role of lender of last resort. The need for crisis management framework and regulatory and supervisory framework development are highly important and crucial for Cambodia.

Abbreviations

AML/CFT	Anti-money Laundering and Combating Financing of Terrorism.
BSD	Banking Supervision Department.
CAMELS	Capital, Assets, Management, Economics, Liquidity and Sensitivity to Market Risk.
CAMINCO	Cambodia National Insurance Company.
COBRA	Cambodian Offsite Bank Report for Prompt Corrective Action.
CSC	Consultative Supervision Committee.
ERSD	Economic Research and Statistics Department.
FIU	Financial Intelligence.
FSDS	Financial Sector Development Strategy.
KHR	Khmer Riel.
LLR	Lender of Last Resort.
MEF	Ministry of Economy and Finance.
NBC	National Bank of Cambodia.
OSS	Off-site Surveillance System.
SECC	Security and Exchange Commission of Cambodia.

References

Chanto, C., (2001), "The Vision of a Progressive Policy Implementation", The Auto-Biography, Phnom Penh, Cambodia.

Greuning, H. and Bratanovic, B.S., (2003). "Analysing and Managing Banking Risk: A Framework for Assessing Corporate Governance and Financial Risk", International Bank for Reconstruction and Development, The World Bank, Washington, D.C.

Knight, M., (2002), "The Central Bank's Role in Fostering Financial System Stability: A Canadian Perspective", Financial Risks, Stability, and Globalisation. A Paper Presented at the Eighth Seminar on Central Banking, International Monetary Fund, Washington, D.C.

Meatra, I., (2010), "Insurance Supervision in Cambodia", Presentation, Insurance Division, Financial Industry Department, Ministry of Economy and Finance, Cambodia.

Nay Im, T.; Sokha, N.; and Dabadie, M., "Dollarisation in Cambodia", National Bank of Cambodia, Phnom Penh, Cambodia.

National Bank of Cambodia, (2009), "Banking Supervision Report".

Royal Government of Cambodia, (2007), "Financial Sector Development Strategy: 2006-2015", Phnom Penh, Cambodia.

Sabbarao, D., (2010), "Redefining Central Banking", *Financial & Development*, Vol.47, No.2.

Santoso, W. and Batunanggar, S., (2007), "Effective Financial System Stability Framework", The SEACEN Centre, Occasional Papers No.45.

Chapter 3

ADDRESSING RISKS IN PROMOTING FINANCIAL STABILITY: INDONESIA EXPERIENCE

By
Elis Deriantino[1]

1. Introduction

The stability and health of the financial sector is closely related with economic performance. The global financial crisis of 2008 highlights the inter-linkages of the macro economy with the financial sector. The 2008 crisis which was triggered by credit deterioration of US sub-prime mortgage in banking sector, spread and created turmoil in the asset market due to the intertwine between the credit and asset market hence leading to a global liquidity squeeze, triggering global financial instability. The global liquidity squeeze was due to the amounting (credit) loss experiences by financial institutions and the need to increase capital as the loss has eroded their capital leading to bank constraints for investment allocations in productive sectors of economy. As a result, the global economy downturn led to severe recession in many countries.

Disruptions in the intermediation function may lead to economic downturn. However, rapid expansion in banking lending activities may increase the likelihood of banking risks, given the potential of deteriorating debt repayments that could lead to increasing future non-performing loans (credit risk) particularly when business cycle enter the contraction phase or in tight monetary condition with increasing interest rate. The recent crisis in Spain caused by banks practicing excessive lending particularly to the property and construction sector during the 2005-2007 boom period, led to a property and construction bubble. This was in the wake of the 2008 global crisis and hurt the Spanish economy which depended on the growth of the property and construction sector (McGovern, 2010). This raises concerns for the existing framework of macro-prudential surveillance which is not very effective for limiting the build-up of financial risks or effective for monitoring the financial cycle to reduce the probability or magnitude of a financial bust (Committee on the Global Financial System, 2010).

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Moreover, the 2008 crisis also gives an example of the inter-linkage between monetary stability and financial stability: how monetary authorities respond to turmoil in credit and asset markets. Monetary authority in economies that are affected most by the crisis tend to apply accommodative monetary stance (lower interest rate) and inject huge amounts of money into the market in order to ease the stress in the financial market due to liquidity squeeze.

The latest 2008 crisis also reveals the importance of coordination among the financial and monetary authorities and the detailed steps that need to be taken to guard against rising systemic risks which may jeopardise the financial system as a whole. This coordination and detailed actions for crisis resolution, however, need to be taken under legal purview or raises the issue of the importance of having legal guidance which can be used by financial authorities during a crisis.

We have identified some major issues that will influence the stability of the financial system, i.e., the inter-linkage between the financial sector and economy as a whole, effectiveness of macro-prudential surveillance framework, particularly from a crisis preventive point of view, and coordination among financial, monetary authorities as well as financial institutions for effective crisis resolution. In view of this, the objectives of this paper are to provide an overview of the existing Indonesian financial system stability framework, development of financial stability and how it contributes to the Indonesian economy in general, as well as identify some aspects particularly for macro-prudential surveillance framework that can be more effective for the prevention of the build-up of financial risks and excessive risk taking behaviour of market players, hence promoting stronger financial system stability in future.

This study is important for several reasons. First, it enhances greater understanding of financial stability framework by identifying important issues and development that may affect financial stability. Second, it addresses some aspects that have not been covered under current framework but nonetheless are important for enhancing greater financial stability.

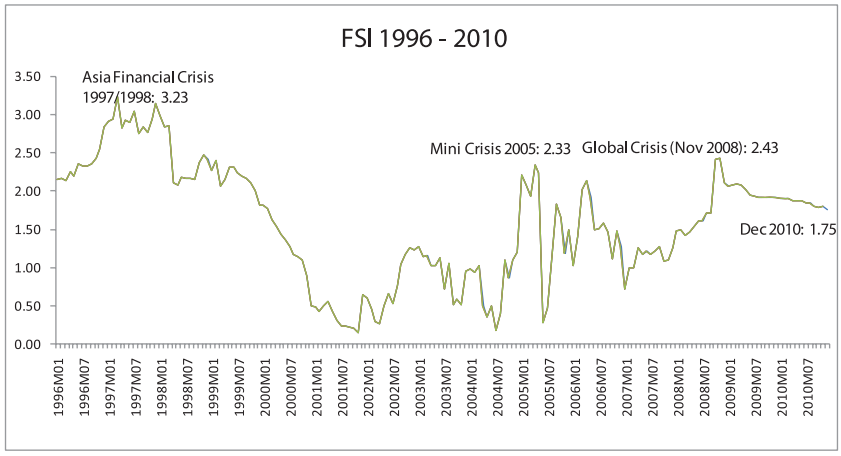
The remainder of the paper is structured as follows. The next section presents the overview of the development of Indonesia's financial stability. Section 3 discusses the features of Bank Indonesia's Financial System Stability Framework, while Section 4 delves into the supporting tools used for macro-prudential surveillance. The assessment of current financial system stability is presented in Section 5, while Section 6 provides some recommendations and policy implication, followed by the conclusion in Section 7.

2. Financial Stability in Indonesia

2.1 Development of Indonesia's Financial Condition

The development of Indonesia's financial system condition can be summarised by the Financial Stability Index (FSI) below:

Figure 1
Financial Stability Index



Source: Bank Indonesia

The graph above indicates that Indonesia has experienced three crisis periods that affected much of its financial stability over the past two decades.

The Asian financial crisis in 1997/1998 caused the economy to enter into a recession phase (around -18% by the end of 1998) with inflation reaching up to 82.4% and the Indonesian rupiah (IDR) depreciating around 500% - forcing Bank Indonesia (BI) to raise the policy interest rate to up to 78.39% by the end of 1998. The performance of the real sector (household and corporate) was badly affected as with banking performance. Banks' intermediation function deteriorated, with credit growth falling to -31% at the end of 1999 while NPL ratio soared to 47.43%. The stock market also experienced sharp volatility with the Jakarta Composite Index falling around 60% in the 1998 compared to the previous year. The period of 2000-2004 was a period of recovery when economic

performance improved significantly. Banking intermediation function started recovering with declining (credit) risk, as well as better performance in the stock market where the index reached 1,000 by the end of 2004.

The development of macro conditions continued to affect Indonesia financial stability. At the end 2005, Indonesia entered into a new phase of a mini-crisis, due to the government decision to liberalise domestic oil prices. Indonesia has become net oil importer country performance since 2004 (previously Indonesia was a net oil exporter). This situation added more burden for the government budget with the oil subsidies. To cope with this, the government removed oil price subsidy gradually starting in early 2005, and by October 2005, the subsidy was completely removed leading to the domestic oil price being fully determined by the market. This change led to a sharp increase in inflation from 6.4% in 2004 to 17.11% in 2005 - the highest level since the 1998 Asian financial crisis – as well as a sharp decrease in economic growth, from 7.16% in 2004 to 5.11% in 2006, forcing BI to raise its policy interest rate from 7.43% at the end of 2004 to 12.75% at the end 2005 and early 2006. Again, this condition had severe impacts on real sector performance affecting bank performance. Banks' credit risks, as indicated by the NPL ratio, jumped from 4.50% in 2004 to 7.59% in 2005 while credit growth declined from around 23% in 2005 to only 14% in 2006.

The year of 2007 to the middle of 2008 was a recovery phase, when the economy was growing and inflation tamed. Banks' intermediation function improved with manageable credit risk as indicated by increasing credit growth and declining NPL ratio. In the capital market, stock and bond prices continued showing increasing trends. The US sub-prime mortgage crisis that led to the 2008 global crisis, however, impacted Indonesia's financial system in the last quarter of 2008. Stock prices decrease by around 60% against the level in early 2008, or hit the lowest level since 2005. The Government bond rate hit the lowest price since the first issuance in 2005, leading to capital outflows which caused the IDR exchange rate to fall to the lowest level since the Asian financial crisis in 1997/1998. The peak of the crisis was in November 2008 when the Indonesia Deposit Insurance Company (IDIC) decided to take over one of the banks with potential systemic impact due to liquidity shortage. However, the takeover of this bank did not cause significant turbulence in the banking sector due to proper and effective coordination among the Indonesian authorities under the agreed crisis management protocol.

However, concern for the long-term impact of the crisis, made the corporate sector reconsider or withhold their business expansion plans. The banks'

reluctance to expand their lending due to uncertainties brought on by the crisis led to a credit crunch in the following year, when credit only grew around 10% at the end of 2009, compared to around 30% y-o-y in 2008 or right before the global crisis - the lowest growth since the East Asian financial crisis in 1997/ 1998. Meanwhile, the capital adequacy ratio (CAR) remained at a high level of 16.2% (compared to the minimum regulatory standard of 8%). This low credit growth led to declining economic growth, with the Indonesian GDP growing only 4.55% in 2009 (compared to the 2008 growth of 6.01%). Nevertheless, the Indonesian economy and banks' intermediation role recovered quickly from this latest global crisis. The latest figure for y-o-y GDP growth in September 2010 was 5.8 %, while credit growth in December 2010 was 22.11%. For the stock market, by the end of 2010, stock prices grew around 46% and reached the highest level ever. This was due to the sound fundamentals of the banking industry and the positive outlook of Indonesia's economy in general as well as recent developments in the European sovereign debt crisis and slow economic recovery in the United States which caused huge volumes of portfolio flows into Indonesia. However, this portfolio flow is prone to sudden reversals.

Figure 2
Net Capital Flow/GDP (%)

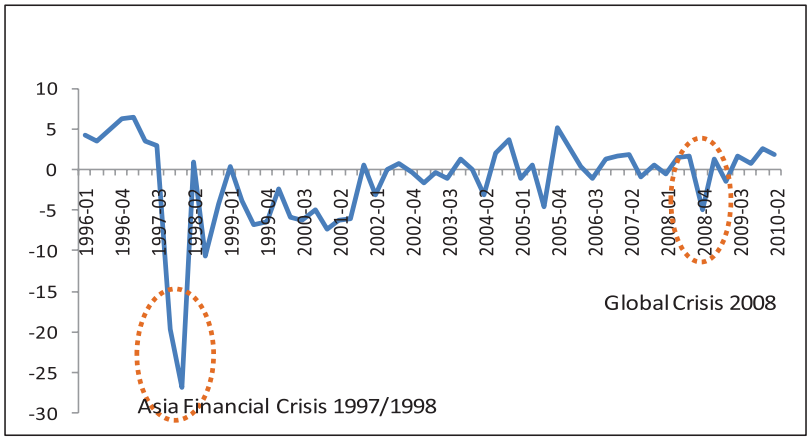
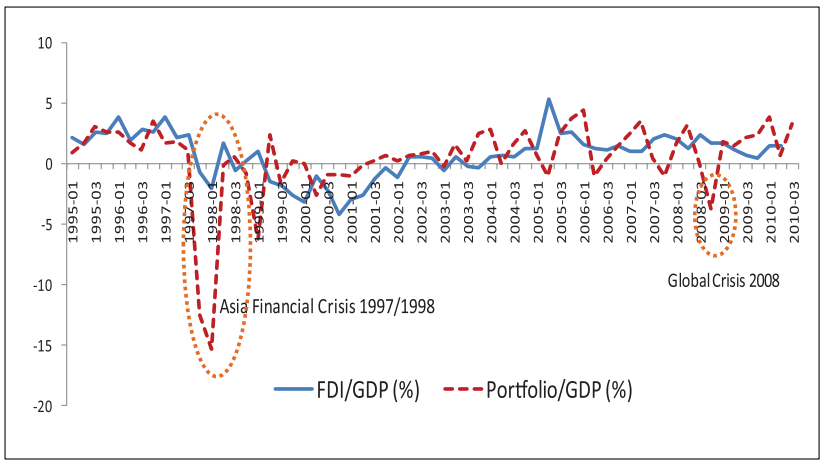


Figure 3
Foreign Direct Investment (FDI)
Portfolio Flow



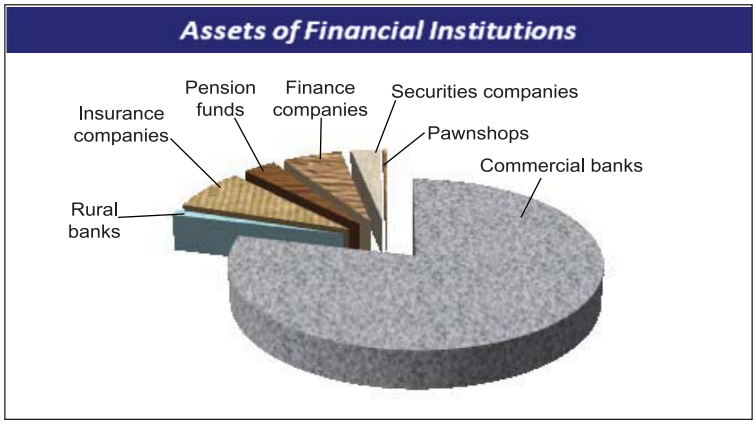
To minimise speculative portfolio inflows that could potentially trigger large and sudden reversals, in June 2010, BI issued a macro-prudential measure that requires investors of Bank Indonesia certificates (SBI) to hold them for at least one month (one-month minimum holding period policy) before trading.

2.2 Organisation and Institution

2.2.1 Structure of Indonesia Financial System

Indonesia's financial system is composed of financial service providers - banks and non- bank financial institutions and pension, insurance, finance companies, securities and pawnshops; financial service users - corporate and household; and payment system. The Indonesian financial market is dominated by the banking industry with asset share of around 80% of the whole financial system. The asset share of financial institutions for 2009 is as shown in the following graph.

Figure 4



Source: Bank Indonesia (2009)

2.2.2 Responsibility of Financial Stability in Indonesia

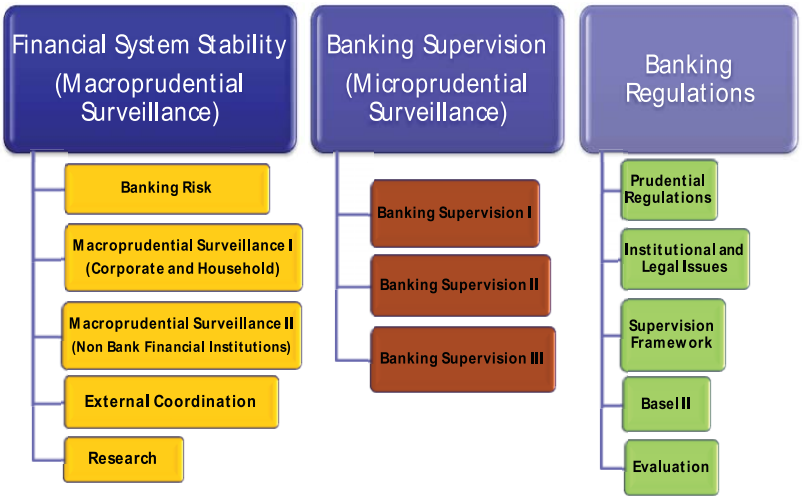
Following the aftermath of the Asian crisis along with increasing awareness on the importance of financial stability, BI enhanced its main mission to "achieving and maintaining price stability by maintaining monetary stability and promoting financial system stability for sustainable national development". To support this broader mission, BI established a new division of Financial System Stability (FSSD) in 2003. The main task of this new unit is to conduct research and surveillance to identify, measure, and monitor risks that can potentially threaten financial stability as well as to recommend required policies to maintain financial stability. In 2004, the Board of Governors also requested the FSSD to expand its tasks to include examining ways to improve the banking intermediation function as a catalyst for real sector growth.

BI focuses its direct regulation, supervision and surveillance on the banking sector. The regulation and supervision of non-bank financial institutions is carried out by the Ministry of Finance (MoF).

Nevertheless, to carry out its role in maintaining financial stability, BI also monitors and assesses the performance as well as risks that may emerge from non-bank financial institutions and users of financial service. This is conducted via regular surveillance which provides BI with a comprehensive understanding of the development performance of the financial system as a whole. Any risk that may emerge in a sector will thus be identified in financial system at the

earliest time. Monitoring and evaluating financial system resilience are undertaken using both macro-prudential and micro-prudential approaches. The financial stability function in BI is carried out by various working units as depicted in Figure 5 below.

Figure 5
Financial System Stability Function



Source: Suhaedi (2010)

The main activities of the FSSD, Bank Indonesia, is summarised in the Figure 6 below.

Figure 6
Financial System Stability Activities and Objectives

Activities	Objectives	Products
Research	✓ Develop tools for assessing financial stability. ✓ Identify risks or threats to financial stability	✓ Working Papers ✓ Articles ✓ Policy Recommendations
Surveillance	✓ Assess and monitor trend and risks of financial stability ✓ Recommend policies for maintaining financial stability	✓ Financial Stability Review (FSR), published biannually. ✓ Information and policy recommendations on financial stability, incl. daily and weekly reports, materials for board meeting (monthly and quarterly).

Source: Suhaedi (2010)

To support its role in maintaining financial stability, BI developed the infrastructure of the payment system as well as the database, i.e., Real Time Gross Settlement (RTGS) and Debtor Information System (DIS) (containing data of 21 million debtor performances in Indonesia) respectively. The DIS has been utilised to create transition matrices, a tool to monitor credit risk. To support tasks in surveillance and research, BI developed the electronic banks' daily and monthly reports as well as subscribing to various data providers, such as Bloomberg, Bankscope, CEIC, and Datastream.

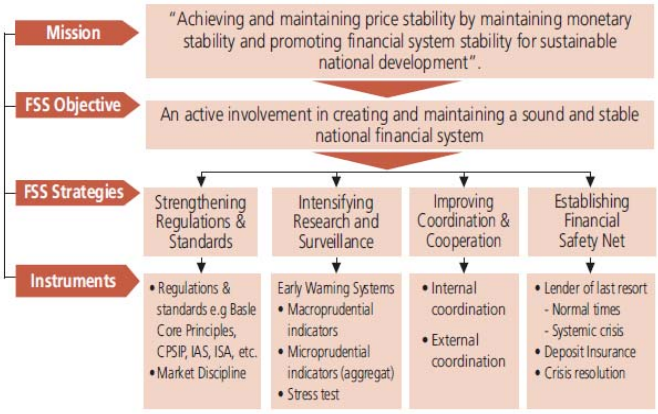
2.3 Regulations and International Compliance

As part of BI's strategies to maintain financial stability, BI adopted the Basle core principles, 12 key standards in the financial sector, Core Principles for Systematically Important Payment System, and the International Accounting Standard (IAS) to strengthen regulation and standards. As a member of the G20 countries, BI in 2009-2010 undertook the Financial Sector Assessment Programme (FSAP) to assess the resilience of the Indonesian financial sector in facing extreme but plausible shocks. This programme also assessed the degree of BI's compliance of international standards as part of the promotion of financial stability. The result of this assessment programme showed that the banking system is generally healthy (FSAP, 2010).

3. Bank Indonesia Financial System Stability Framework

To create and maintain financial stability, BI developed the following framework.

Figure 7
Framework of Bank Indonesia's Financial System Stability



Source: Financial System Stability: What, Why and How? (Bank Indonesia, 2007)

The four strategies adopted to pursue stable financial system include strengthening the regulations & standards, intensifying research and surveillance, improving coordination & cooperation and establishing financial safety net. Strengthening the regulations & standards and intensifying research and surveillance are the two adopted strategies for crisis prevention, while improving coordination & cooperation and establishing financial safety net are focused on crisis resolution. Each of the strategies will be elaborated in the following section.

3.1 Crisis Prevention

3.1.1 Strengthening Regulation and Standard

BI implemented this strategy by complying with the international standards such as Basel Core Principles, Core Principles for Systemically Important Payment Systems, and IAS and developing regulations on national discretion base.

This strategy is also implemented through both macro-prudential regulations and micro- prudential regulations. The following table shows macro-prudential instruments adopted by BI.

Figure 8
Macro-prudential Instruments

Type of Instrument	Description
Measures Targeting Credit Growth	
Limits Calibrated to Particular Credit Markets	Banks are prohibited from extending loans to foreign parties
Reserve Requirement (RR)	Bank will get disincentive of higher RR if its LDR falls outside the range of 78≤LDR≤100, as follow: - Additional 0.1 of deposit for each 1% shortage from lower bound of LDR range - Additional 0.2 of deposit for each 1% surplus from upper bound of LDR range and bank's CAR is less than 14%
Measures to limit the build-up of system wide financial risks/ to address specific financial risk	
Reserve Requirement (RR)	Minimum holding of secondary RR (2.5% of deposits) in the form of central bank certificates, government bonds or cash.
Currency Risk Limits	1. Banks are prohibited from undertaking derivative structured product in terms of foreign exchange transaction 2. Limit on bank's daily net open FX position, maximum 20% of capital

Measures to reduce interconnectedness	
More Intensive Supervision for More Systemic Entities	All systemically important banks are subject to an intensive supervision programme including daily monitoring of liquidity positions and projections
Loan Limit to Affiliated Party	Banks are prohibited to extend loan for single affiliated party more than 10% of the capital
Measures to Address Capital Flow Volatility	
Central Bank Bills	1. One month minimum holding period of BI certificate 2. Lengthening maturity of BI certificate from 1 month to 9 and 12 month
Tools to Communicate Macro-prudential Risk Assessments	
Financial Stability Review	Promote public understanding of financial stability issues and communicate central bank's risks assessment including macro-stress test
Inputs to Macro-prudential Assessments	
Households Survey **Probability of Default & Recovery Rate Survey** **Credit Bureau**	To fill the data gap in assessing the resilience of the financial system
Financial Stability Index **Macro-credit Risk Stress Test**	To strengthen analysis of resilience of financial system to macro-shocks

The regulations under the micro-prudential framework have the ultimate objective of limiting the likelihood of failure of individual institutions (idiosyncratic risk) and hence protecting the depositors. These include the risk-based supervision framework, regulation on Know Your Customer (KYC), Anti-money Laundering and transparency on bank's financial condition. As such, the implementation of regulations and international standards as well as consistent market discipline from market players and supervisors form the foundation of all financial activities.

3.1.2 Intensifying Research and Surveillance

The second strategy of risk prevention is intensifying research and surveillance implemented through risk identification, evaluating and monitoring. Research and surveillance activities may be undertaken on a daily, weekly, monthly, quarterly, annual, as well as on ad-hoc basis. The results will be reported as resources for the weekly, monthly, quarterly and annual Board of Governors meetings as well as published as weekly reports and the bi-annual Financial Stability Review for external communication.

In general, there are two streams of research activities:

(i) Developing tools such as Early Warning System to assess financial system stability. Existing tools including stress testing for banks' credit, market, liquidity and systemic risks, leading indicators for risks in the property sector, transition matrices, probability of default of non-financial institutions, market liquidity of VaR, and FSI.

(ii) Identifying problems that threaten financial system stability. This may involve researches on recent development or issues on the domestic side of the banking sector, capital market, real sector as well as external sector, including regional/global macroeconomy and the global financial system. These include "bubbles in Indonesia stock market"; banks' intermediation and asset price risk implication of high capital inflow; assessment on contagion risk of sovereign debt crisis in Greece on Indonesian stock return volatility; impact of oil price increase on bank's credit risk; impact of global financial regulatory reform on banks' intermediation role and the Indonesian economic performance; and implication of capital flow on Indonesia's financial system stability.

Meanwhile, surveillance is focused on two primary goals:

(i) Assessing and monitoring problems and risks that threaten financial system stability; and

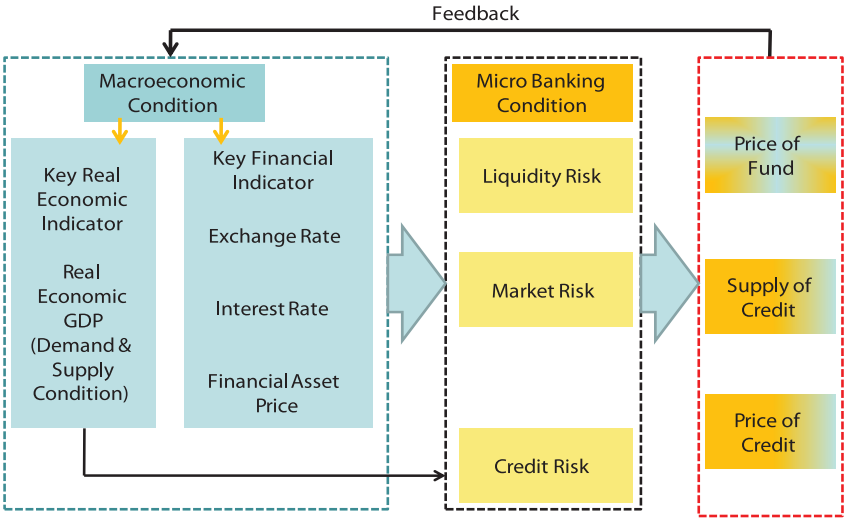
(ii) Proffering recommendations and providing input for policy formulation to maintain financial system stability.

Tools and empirical findings from research activities will be used to support surveillance activities. Assessing and monitoring risks that threaten FSS are

undertaken by two approaches –macro-prudential surveillance and micro-prudential surveillance.

Macro-prudential surveillance which is carried out by the Financial System Stability Bureau includes analysing Financial Soundness Indicators (micro-prudential and macro- prudential indicators), stress testing and regular survey outcomes. The macro-surveillance is carried out for the banking sector, capital market, non-bank financial institutions and household as well as corporate sectors. Moreover, changes on macroeconomic conditions and their impact on financial system are assessed through regular macro-stress testing. Figure 9 shows the general framework of BI stress testing.

Figure 9
Framework of Stress Testing



Currently, the framework focuses on the three most visible risks confronted by Indonesian banks, i.e. credit, liquidity, and market risks. In its risk assessment, BI links the three risks with the general macroeconomic conditions as represented by the key financial indicators of exchange rate, interest rate, and financial asset price, especially the Government bond prices.

As part of its macro-prudential surveillance, the Financial System Stability Bureau of BI conducts regular stress tests for the three banking risks (Alamsyah et al, 2009):

(i) Macro-credit Risk

The objective of the macro-stress testing is to assess the effect of macroeconomic shocks on bank credit quality (NPL gross ratio). The macroeconomic variables include real GDP growth, real policy interest rate, and real effective exchange rate. The dynamic panel model is estimated using the Fixed Effect Least Square method. Among the three key macro variables, GDP contributes the most to banks' credit risk.

(ii) Credit Risk

Credit risk stress testing is performed to assess the impact of the changes in credit quality to bank capital adequacy ratio (CAR). Basically, the data required to perform this stress testing includes the nominal amount of each category of loan quality (Current, Special Mentioned, Sub-Standard, Doubtful, and Loss), and the nominal amount of Loan Loss Provisions (LLP). The results of the macro-credit risk (NPL gross ratio scenarios) can be used as an input in credit risk stress test. Having estimated the changes in the non-performing loans category (Sub-standard, Doubtful, and Loss) and their corresponding LLP levels, we are able to estimate the extent of the pressures to bank profits, and finally, to capital depending on the availability of LLP. Technically, when the provisions are insufficient, bank capital will be used directly to absorb losses. Hence, an increase in NPL will put pressures on bank capital (CAR).

(iii) Liquidity Risk

Liquidity risk stress testing is conducted to assess the impacts of liquidity shortage encountered by banks on their capital (CAR). Liquidity shortage is calculated by subtracting the amount of banks' liquid instruments from their current liabilities. Bank's liquidity shortage will be covered by the Interbank Money Market (PUAB) where the cost is based on the highest PUAB interest rate.

For banks with liquidity shortage, the potential cost is calculated by subtracting the highest interest rate in PUAB by the average rate of 1-month time deposit rate, and will be charged to profit/loss.

(iv) Exchange Rate Risk

Exchange rate stress testing is conducted to identify the effect of the depreciation/appreciation of IDR on bank portfolio in foreign currencies and its impacts on bank capital. The impact of direct exchange rate risk is analysed using the Net Open Position (NOP). The changes in CAR is equal to the exchange rate shock times the exposure. The simulations are performed for both depreciation and appreciation of the IDR/USD exchange rate.

(v) Interest Rate Risk

Stress testing on interest rate risk is conducted to identify the impact of interest rate changes on a bank's portfolio of assets and liabilities, and on capital (CAR). Where there is a maturity mismatch occurring between funding and investment, the changes in interest rates may expose a bank to a risk of loss. There are two simulations conducted, namely, interest rate increase and decrease. Each interest rate change scenario is multiplied by bank exposure based on bank's net long/short short-term positions.

(vi) Government Bond's (SUN) Price Risk

This stress testing is performed to assess the impact of the decrease in price of Surat Utang Negara (SUN) on bank capital (CAR). We focus on SUN because Indonesian banks' investments in SUN reach 90% of their total investments in marketable securities, whereas investments in securities cover 17% of total bank earning assets. The data required includes the outstanding of SUN for the trading portfolio. The scenarios employed are the decrease in SUN's price and for each of these scenarios then multiplied by the trading exposure that cause losses due to the decrease in SUN's price

(vii) Integrated Stress Test

In reality, shocks do not occur due only to changes in one variable. They can be caused by changes in several variables simultaneously. Therefore, we also perform an integrated stress test. In the integrated stress testing, the shocks caused by changes in NPL, interest rates, exchange rates, and government bonds' price, are examined simultaneously to identify their total impacts on bank CAR. It is simply done by adding the total loss resulting from each stress testing.

(viii) Inter-bank Stress Test

In addition to the macro-credit, market and liquidity stress tests, BI also conducts interbank stress test. Contagion among banks is the manifestation of systemic risk. This stress test assesses bank resilience to a shock where the capital loss of the lending banks due to the default of a particular bank (unable to repay its inter-bank obligation) is estimated. Basically, it estimates the number of banks that will have CAR less than 8% (solvency problem) following a bank default. The impact of the collapse of one bank on the Indonesian banking system is measured following the Upper and Worms (2002) approach where interbank relationships are represented by an *N* times *N* matrix:

$$\boldsymbol{X^*} = \begin{array}{c|c|c} & \Sigma_j \\ \hline \begin{bmatrix} 0 & \cdots & X^*_{1j} & \cdots & X^*_{1N} \\ \vdots & & \vdots & & \vdots \\ X^*_{i1} & \cdots & 0 & \cdots & X^*_{iN} \\ \vdots & & \vdots & & \vdots \\ X^*_{N1} & \cdots & X^*_{Nj} & \cdots & 0 \end{bmatrix} & \begin{matrix} a_1 \\ \vdots \\ a_i \\ \vdots \\ a_N \end{matrix} \\ \hline \Sigma_i \quad l_1 \quad \cdots \quad l_j \quad \cdots \quad l_N & \end{array}$$

Where, X^*_{ij} is the credit exposure of bank *j* at bank *i* and *N* is the number of banks in the system

In addition, BI also carries out periodic surveys to fill data gaps in particular sectors such as the household balance sheet data survey. This enables BI to monitor household financial performance and identify potential risks that may emerge from their balance sheet composition.

Meanwhile, micro-prudential surveillance is carried out by banking supervision departments through on-site and off-site supervision of individual banks. BI has introduced a system of supervision applying the twin approaches of compliance-based supervision and risk-based supervision (RBS). The use of the RBS approach does not mean doing away with compliance-based supervision, but represents an effort to improve the supervisory system and thus strengthen the

effectiveness and efficiency of bank supervision. Over time, the supervisory approach applied by BI will be progressively changed over to full risk-based supervision.

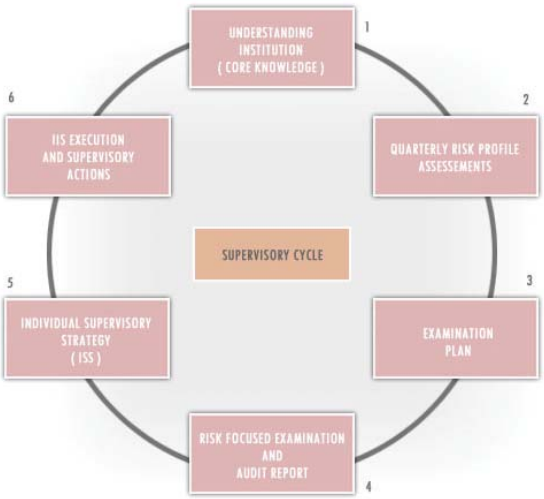
(i) Compliance-based Supervision

This approach essentially stresses the monitoring of bank compliance for enforcement of the regulatory provisions relevant to bank operations and management. This approach refers to the past condition of the bank with the objective of obtaining assurance that the bank is operated and managed properly in compliance with prudential banking principles.

(ii) Risk-based Supervision

This approach represents a forward-looking approach to supervision. In using this approach, supervision/examination of a bank is focused on inherent risks in major business lines and the risk control system. This approach allows greater room for proactive actions by the supervisory authority to prevent problems from arising within the bank. The risk-based supervisory approach applies a supervision cycle as follows:

Figure 10
Risk-based Supervisory Approach



There are eight bank risks that are the focus of supervision - credit, market, liquidity, operational, legal, reputational, strategic, and compliance (this section is mainly extracted from http://www.bi.go.idhttp://www.lps.go.id/v2/data/peraturan/IDIC%20Act%20final_explanations.pdf).

The results from the research and surveillance will be followed up as input for formulating policy recommendation in terms of prevention, correction and crisis resolution to maintain financial stability.

3.2 Crisis Resolution

3.2.1 Improving Coordination and Cooperation

BI is responsible for maintaining financial system stability. However, since financial system stability is of public concern and integration of financial institutions may cause instability, all parties related to the financial system are also responsible, including financial sector authorities, financial institutions and markets as well as the public or users of financial services. Hence, coordination and cooperation are carried out at the internal, national and international level.

At the internal level, the BI Internal Forum which is a representation of various departments in BI was established to assess potential systemic risk of a bank before providing it with access to the Emergency Funding Facility. It also handles banks with and without systemic impact, follows up on various issues related to financial system stability, proposes final decisions on banks to be categorised and supervised under the Special Surveillance Unit (SSU), and makes decisions on problem banks that cannot be saved.

At the national level, a Financial System Stability Forum (FSSF) comprising of BI, the MoF and IDIC was established in 2005. The FSSF is a venue for coordination, cooperation and information exchange among the authorities responsible for safeguarding financial system stability in Indonesia. This forum has a crucial role, particularly in addressing systemic risk that can only be resolved through joint policies and decisions followed by coordinated, effective actions.

Coordination and cooperation is also undertaken at regional/international level. BI is a member of the Financial Stability Board since 2009.

3.2.2 Establishing Financial Safety Net and Crisis Management Protocol

The coverage of crisis management protocol is crisis prevention and crisis resolution[2]. With regard to the crisis management protocol, BI, MoF, and IDIC – as members of the FSSF - have developed the Financial Sector Safety Net (FSSN). A comprehensive FSSN consists of:

(i) Independent and Effective Supervision

As part of crisis prevention, this is undertaken by compliance to international standards and emphasising on risk-based supervision framework.

(ii) Lender of the Last Resort

BI has the facility to overcome bank's liquidity shortage via three schemes:

a. Intraday Liquidity Financing.

This facility is provided by BI as part of crisis prevention. It is given to banks experiencing liquidity mismatch due to larger outgoing transactions as against incoming transactions under normal conditions. This is to ensure smoothness of the payment system or prevent gridlock in the payment system.

b. Short-term Liquidity Financing

As part of crisis prevention, BI provides this facility for banks experiencing liquidity mismatch between cash outflow and cash inflow and hence cannot meet minimum reserve requirement. To be eligible for this facility, a bank is required to remain solvent, with CAR minimum 8%.

c. Emergency Liquidity Assistance (ELA)

This facility is provided by BI as part of crisis prevention and by the government as part of crisis resolution. This facility is intended for banks experiencing liquidity (mismatch between cash outflow and cash inflow) and

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2. In this paper, we only discuss Financial Safety Net and Crisis Management for banking sector, which is part of the Financial Safety Net and Crisis Management Protocol for Financial System (including Non-banking Financial Institutions) that is currently under review.

solvability problems (cannot meet the minimum capital adequacy ratio but CAR remains positive) which may have systemic impacts. The FSSF decides whether a bank can be categorised as bank with potential systemic risk, and hence deserve ELA.

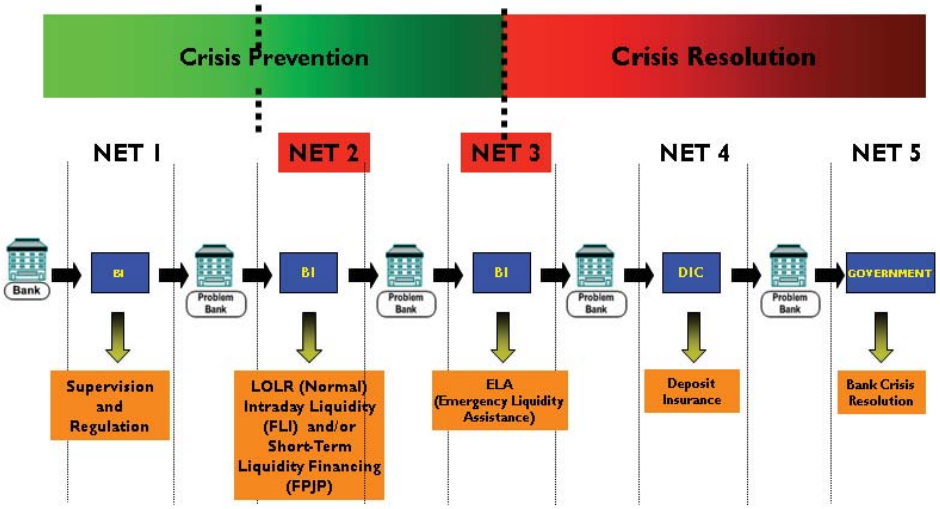
(iii) Deposits Insurance Scheme

The ultimate objective of the deposit insurance scheme is to maintain public trust towards the banking industry and minimise the risks that may place a burden on the state budget and cause a moral hazard. If the condition of the bank that is experiencing liquidity problem worsens, marked among others by declining solvability of the bank (negative CAR), BI will categorise the bank as a "Failing Bank" and hand it and its management over to the IDIC. This will result in the revocation of the Failing Bank's licence and the IDIC will pay every depositor up to a certain amount. The decision to save or not to save the bank is a collective decision made by the FSSF after considering the effects of revoking the licence of the Failing Bank on the national economy and the degree of systemic impact the bank may have. (This section is mainly extracted from http://www.lps.go.id/v2/data/peraturan/IDIC%20Regulation%20Number%204%20Year%202006.pdf http://www.lps.go.id/v2/data/peraturan/IDIC%20Act%20final_explanations.pdf).

(iv) Effective Crisis Management

In respect to this, BI performs two primary functions - crisis prevention and crisis resolution. Hence, the crisis management protocol (both crisis prevention and crisis resolution) is undertaken at the internal level of BI and the national level with the MoF and the IDIC (crisis resolution).

Figure 11
Indonesia Financial Safety Net



4. Supporting Tools for Monitoring Financial Stability

It has been briefly discussed in Section 3 that BI has developed and adopted some measurement tools such as an Early Warning System (EWS) for macro-prudential surveillance. The EWS includes leading micro- and macro-indicators (Financial Soundness Indicators), stress tests, and the FSI, the results of which are regularly reported in Board meetings and published through the Weekly Reports and the bi-annual Financial Stability Report. The adopted Early Warning Indicators cover various risks - credit, market, liquidity, systemic/contagion that may emerge in the banking sector, financial (capital and insurance) market, corporate and household sectors, external sector as well as macroeconomic environment that make up the whole financial system. The details of the selected supporting tools of EWS are summarised in the following table.

Sectors	Risks	Early Warning System			Frequency of Report
		Micro- and Macro- indicators	**Stress Testing/ Projection**	**Financial Stability Index**	
Banking	Credit	NPL Ratio Lending Interest Rate Concentration of Sectors Credit Single borrower exposures Credit growth Leading Indicator for NPL of Property Sector	Macro-credit Risk Stress Test Credit Risk Stress Test Transition Matrices Credit Growth Projection		Monthly/Annual
	Liquidity	Liquidity Coverage Ratio (LCR) Loans to Deposits Ratio (LDR) Liquid Asset to Deposits Ratio Core Deposits to Total Asset Ratio Deposits Growth Inter-bank Money Market Interest Rate Inter-bank Money Market Volume	Liquidity Shortage (Current liabilities-bank's Liquid Instruments) Stress Test Deposits Growth Projection LDR Projection Banking (Liquidity) Cash Flow Projection for Systemic Bank		Daily/ Monthly
	Market	Net Open Position Asset Maturity Profile	Interest Rate Stress Test Exchange Rate Stress Test Government Bond Yield Stress Test		Monthly
	Systemic/ contagion	Deposits Loss (Systemic Impact)	Inter-bank Stress Test		Ad-hoc base
Financial Markets (Capital market & Non-banking	Market	Volatility of Jakarta Stock Index Domestic and Foreign Capital Market Transaction Volume	Government Bond Yield Value at Risk Market Liquidity Adjusted		Daily/ Weekly/ Monthly/ Ad-hoc

Financial Institutions)		Bond yield Mutual fund NAV Performance Multi-finance NPL Performance Multi-finance Financial Ratios Performances	VaR (Bid-ask Spreads of Government Bond Prices) Market Liquidity Adjusted VaR (Bid-ask Spreads Stock Returns).		
	Sovereign Credit	Senior 5-year Indonesia Credit Default Swap Spread			Bi-annual
	(Cross Border) Contagion	GARCH Markets Return Volatility			Ad-hoc
	Asset Price Inflation	Stock Price Bubble Formation - Aggregate and Sectoral			Ad-hoc
Real Sector - Corporate	Credit	DER Total Loan to Total Asset ratio	Contingent Claim Analysis of Non-financial Institutions		Quarterly
	Profitability	ROA ROE			Bi-annual
Real Sector – House Hold	Solvency	Total Debt/Current Asset Total Debt/Disposable Income Household Funding Composition Household Expense Composition Household Loan Composition			Annual (survey based)
Macroeconomy		Economic Growth Balance of Payment Items Inflation Interest Rate Exchange Rate Volatility			Annual/Quarterly/ Monthly/ Daily
Financial System				Financial Stability Index	Monthly/ Annual

5. Assessing Current Financial System Stability Framework

The latest global crisis due to the build-up of financial imbalances (undesirable asset price inflation) and procyclicality of the financial system was worsened by the inter-connectedness between financial institutions. This has exposed the economy to risks of a severe downturn. Moreover, it reveals that micro-prudential supervision, which basically lacks forward- looking assessments, failed to ensure that the financial institutions had sufficient capital and liquidity to cope with shocks in many cases (Committee on the Global Financial System, 2010). In Indonesia, this was evidenced by the takeover of a bank with systemic impact due to liquidity shortage by the IDIC. As such, this calls for the urgent development and strengthening of the current macro-prudential framework from a preventive point of view to complement the existing micro-prudential supervisory rules.

Borio (2009) states that the macro-prudential regulation and supervision framework is best as considered from two dimensions, which have different implications for the designing of appropriate prudential tools:

(i) Cross Sectional Dimension

This is related to the distribution of risk in the financial system or contribution of each financial institution to system-wide risk or common (correlated) exposures/interconnectedness among institutions that arise due to balance sheets inter-linkages that result in systemic risks. This would imply that institutions with larger contributions should be imposed with tighter standards. Systemically capital surcharge is an example of prudential tool to address this issue.

(ii) Time Series Dimension

This is focused on the issue of the building up of aggregate financial risk over time or inherent procyclicality of the financial system where system-wide risk can be amplified by interactions within the financial system as well as between the financial system and the real economy. Counter-cyclical regulations such as dynamic provisioning, is an example of prudential tool to address this issue.

In Section 3.1.1, it was described that the current macro-prudential framework of BI tends to focus on measures targeting credit growth and addressing liquidity and currency risks. The current framework lacks measures to address the interconnectedness and moderation of financial cycle (procyclicality) issues. The recent internal BI studies show that banks' loan loss

provisioning and capital (CAR) have procyclical impact. Following the 2008 global crisis, this procyclical behavior was accompanied by excessive risk-taking behavior during the upturn cycle of the economy causing sharp declines in credit growth, contributing to adverse economic growth. Hence, to promote stronger financial stability in terms of banks' intermediation role for more robust economic growth, it is important to consider implementing counter-cyclical measures as well as providing disincentives for excessive risk-taking behavior, particularly during the boom phase of the economy to reduce pressure from de-leveraging during economic downturns.

With regard to the interconnectedness issue, the 2008 crisis has shown regulators that inadequate attention to the overall system explains why global finance can be so prone to contagion. The current globalisation which has caused financial institutions to be more integrated with each other, has also led to increasing potentiality of contagion risk. It is important to consider developing measures that are able to limit interconnectedness among institutions. Furthermore, it should be noted that each institution may have different contributions to the build-up of systemic risks given its different level of interconnectedness. IMF (2010) suggests that regulators consider a systemic capital surcharge where financial institutions with higher systemic impact will be imposed a higher capital requirement. This macro-prudential allocation of capital requirement will help significantly to reduce both the default probabilities of individual institutions and the probability of multiple institutions defaults, hence leading to lower probability of systemic risk to emerge.

The 2008 global financial crisis has raised several importance issues:

(i) The importance to have risks assessment under a forward-looking framework.

The current micro-prudential supervision relies on the assessment of lagging or contemporaneous financial indicators of distress at best or backward-looking indicators. One way to overcome this drawback is to require bank supervisors to improve on the current practice for stress testing including implementing macro-stress tests to check banks' resilience in the face of shocks. Stress testing should be an important part of supervisory actions and is the basis for regulators to take immediate remedial action and develop a crisis contingency plan. The current implementation of stress tests in BI raises some important issues that may need to be resolved:

a. The stress tests should be done under a more dynamic framework with longer time horizons of shocks, preferably extended to over one year. The current stress test framework typically carried by bank supervisors is static stress test that only applies for a one point of a time shock. This framework hinders the supervisor from observing the cumulative impact of the shock, when the worst impact will materialise, how long the shock impact will last, or how long it will take to recover following the shock.

b. It tends to focus on sensitivity stress tests which estimate the impact of a single risk factor move (e.g., interest rate, exchange rate) rather than a more comprehensive scenario analysis which includes simultaneous moves in a number of risk factors.

c. The shock scenarios should be considered as extreme enough but plausible to happen. In many cases, the scenarios being utilised in sensitivity stress tests are too mild that may hamper the supervisors to classify real bank's resilience under extreme conditions.

(ii) The 2008 global financial crisis also brings us to the important issues as to what measures should be applied to justify identifying a bank as being a systemically important financial institution (SIFI), and what indicators should be utilised to measure the degree of contribution of each systemically important institution to systemic risk. The answer to this question is important to determine additional buffers needed to be imposed on each financial institution based on each institution's magnitude of impact on system-wide risk.

(iii) Moreover, the takeover of the small bank due to liquidity problem by the IDIC in the 2008 crisis has also raised another debate on the legal aspect of policy implementation by regulators.

Although BI is enhancing its main mission to "achieving and maintaining price stability by maintaining monetary stability and promoting financial system stability for sustainable national development", the role of a financial systemic regulator to promote financial system stability has not yet been legalized, or is there a clear legal mandate with respect to BI's role as the financial systemic regulator. "To command respect there needs to be adequate accountability of policymaker to legislatures and public: the arrangements should have 'legitimacy' in the eyes of directly interested parties and the population at large" (Large, 2010).

With regard to the case of a small bank that experienced liquidity problem in the 2008 crisis, under normal conditions, the bank may be closed and liquidated. However, in alignment with the crisis management protocol, the Financial System Stability (FSS) committee agreed to rescue or bail out the small bank because closing the bank at the peak of crisis could transmit systemic impacts on the banking system. Nevertheless, what seemed a right action at the time and could be proven later to safeguard the stability of the Indonesia financial system and economy growth sustainability, comes with it political implications or can become a political furor for regulators subsequently, such as when Parliament questions the reasons for the bail out of the bank. Hence, it is clear that regulators (government officials) require legal protection and political support for accountability of decisions and policies implemented during a crisis or in other words as recommended by FSAP (2010): "*It is imperative that an effective crisis management protocol becomes law*".

(iv) The last, current institutional set up where BI is in charge of both bank supervision and monetary policy enables it to implement an effective decision-making process based on the macro-prudential framework. It is crucial to establish a mechanism for information sharing and potential crisis alert between macro-prudential supervisors (the financial system stability unit) and micro-prudential supervisors (the banking supervision unit). This is best done if both macro-prudential and micro-prudential roles are carried out by a single institution which acts as the systemic financial regulator. A proposal to remove the supervisory function from BI to a different institution would only result in difficulties particularly regarding information flows during crisis periods and up-to-date information access and sharing. This could hinder the decision-making process for strengthening the resilience of the financial system as well as the prompt assessment of the effectiveness of monetary policy on the financial system.

6. Recommendation and Policy Implication

With the prevalence of dynamic financial market and business cycles, BI always has to stay alert to ensure that banking regulations provide proper incentives or disincentives to safeguard the system from building up financial risks while at the same time promote stronger bank intermediation. Regulators must be able to have a handle on excessive risk taking by market players in order to maintain economic growth and increase financial stability. This can be achieved through a regulatory framework which gives incentives for stable financial intermediation and disincentives for excessive risk taking as well as implementing a countercyclical policy. For example, the macro-prudential policy on Reserve Requirement LDR based, may curb banks' excessive lending activity

by charging higher RR for banks for which LDR exceeds 100%. This regulation will have counter-cyclical feature if it is complemented with the additional application of an incremental capital buffer (counter-cyclical capital requirement) for banks whose LDR ratio exceeds the maximum target of 100%.

Moreover, it is crucial to establish a mechanism for information sharing and potential crisis alert between macro-prudential supervisors (the financial system stability unit) and micro- prudential supervisors (the banking supervision unit). Macro- and micro-prudential approaches have to be integrated with the overall monitoring system of the financial system. Hence, we need more human resources who work in the monetary sector but have micro-prudential perspectives and vice versa, i.e., more personnel working in the financial stability sector but have macroeconomic perspectives for effective supervision and surveillance of the financial system as well as monetary system. This is in view of the fact that monetary and financial stability resemble two faces of the same coin in their impact on each other.

The importance of having effective supervision under forward-looking paradigm also calls for the need to strengthen both BI and banks' stress testing capability, particularly dynamic stress tests that incorporate changes in macro-factors and feedback effect from banking system to the general macroeconomic condition.

With regard to the legal aspect of policy implementation, it is mandatory to establish adequate legal protection and political support for regulators to do their jobs effectively. This is particularly important under crisis situations. Even though BI and the government can exercise the crisis management protocol (CMP) smoothly and come up with the best solution given the situation, work needs to be done on the communication of decisions and the establishment of a legal framework to support the decision-making process based on macro-prudential analysis.

7. Conclusions

This paper provides an overview on the current BI financial system stability framework and highlights some important issues. It has been shown that the existing framework is sufficiently effective to address the risks in the financial system that emerged during the recent global financial crisis and able to preserve overall financial stability in support of sustainable economic growth. Nevertheless, there are still some weaknesses that need to be urgently addressed under the current framework.

(i) Regulation

The effectiveness of macro-prudential regulation to be enhanced for preventing market players from excessive risk-taking behavior that may contribute to asset price inflation (or prevent from the building up of financial risks) as well as to ensure stronger bank intermediation to support economic growth, particularly during the down swing period (a counter-cyclical measure), and reduce the interconnectedness among institutions.

(ii) Research and Surveillance

Supervisors' stress testing capability for forward-looking assessment should be strengthened and measures to categorise systemically important banks to be defined.

(iii) Coordination and Financial Safety Net

Decisions taken under a crisis procedure and legal framework for decision-making should be effectively communicated to the stakeholders.

Improvements on the above aspects will promote stronger financial system stability in terms of a more resilient system to risks and greater role in intermediation for sustainable economic growth.

Abbreviations

BI	:	Bank Indonesia
CAR	:	Capital Adequacy Ratio
CMP	:	Crisis Management Protocol
DIS	:	Debtor Information System
ELA	:	Emergency Liquidity Assistance
EWS	:	Early Warning System
FSAP	:	Financial Sector Assessment Programme
FSI	:	Financial Stability Index
FSSD	:	Financial System Stability Division, Bank Indonesia
FSAP	:	Financial Sector Assessment Programme
FSSF	:	Financial System Stability Forum
FSSN	:	Financial Sector Safety Net
FX	:	Foreign Exchange
IAS	:	International Accounting Standards
IDR	:	Indonesian Rupiah
IDIC	:	Indonesia Deposit Insurance Corporation
KYC	:	Know Your Customer
LCR	:	Liquidity Coverage Ratio
LDR	:	Loan to Deposit Ratio
LLP	:	Loan Loss Provision
MoF	:	Ministry of Finance
NAV	:	Net Active Value
NOP	:	Net Open Position
NPL	:	Non-performing Loan
PUAB	:	Pasar Uang Antar Bank
RBS	:	Risk-based Supervision
RR	:	Reserve Requirement
RTGS	:	Real Time Gross Settlement
SBI	:	Sertifikat Bank Indonesia
SIFI	:	Systemically Important Financial Institution
SSU	:	Special Surveillance Unit
SUN	:	Surat Utang Negara
VaR	:	Value at Risk

References

Alamsyah, H.; Santoso W.; Agusman; Rulina, I.; Noviati; Deriantino, E.; Munandar, H.; and Budiman, A., (2009), "Stress Testing Framework in Indonesia: A Methodology", Research Paper 11/2, Bank Indonesia.

Bank Indonesia, (2009), Financial Stability Review No.13, September 2009.

Bank Indonesia, (2007), Financial System Stability Booklet: What, Why and How?

Borio, C., (2009), "Implementing the Macro Prudential Approach to Financial Regulation and Supervision", Financial Stability Review No.13, Banque de France.

Committee of the Global Financial System, (2010), "Macro Prudential Instruments and Frameworks: A Stocktaking of Issues and Experiences", CGFS Papers No.38, Bank for International Settlements.

International Monetary Fund, (2010**),** Indonesia: Financial System Stability Assessment, IMF Country Report No. 10/288, September 2010.

Large, A., (2010), "What Framework is Best for Systemic (Macro Prudential) Policy?" Centre for Economic Performance, London School of Economics and Political Science.

McGovern, D., (2010), "Spain's Anti-crisis Stimulus Plan Poses Serious Risks to Market Financing and Economy Recovery", Centre for Financial Stability.

Upper, C. and Worms, A., (2002), "Estimating Bilateral Exposures in the German Inter-bank Market: Is there a Danger of Contagion?" Deutsche Bundesbank Discussion Paper 9, February 2002.

Indonesia Deposit Insurance Regulation No.4/PLPS/2006. Viewed at: <http://*www.lps.go.id/v2/data/peraturan/IDIC%20Regulation%20Number%204%20Year%202006.pdf*>.

Suhaedi, (2010), Resource Scarcity in Financial Stability Field, Presentation delivered at the Bank for International Settlements (BIS).

Chapter 4

PROMOTING FINANCIAL STABILITY IN MALAYSIA

By
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1. Introduction

Financial stability has increasingly become a key area of focus among policy makers globally over the last decade. This was reflected in the rapid increase in the number of central banks publishing financial stability reports as well as more prominence accorded to financial stability in organisational structures and mandates of many of these institutions (Schinasi, 2007). By 2009, close to 60 countries have already published financial stability reports from only 2 countries in 1995 (Èihák, 2009). The greater emphasis on financial stability was broadly in tandem with several major trends and structural changes in financial systems reflecting the expansion, liberalisation, and subsequent globalisation of financial systems - all of which have increased the possibility of larger adverse consequences of financial instability on economic performance (Schinasi, 2007). Financial instability can be costly on the economy. Cumulative output losses incurred during crisis periods are estimated to be approximately 15% to 20% on average of annual gross domestic product (Hoggarth, Reis and Saporta, 2001). More recently, the global financial crisis has resulted in widespread effects of unprecedented scale across the world, causing a synchronised slowdown in global economic growth in 2009. The depth and breath of the global financial crisis has given fresh impetus for policy makers globally to rethink the approach and framework for safeguarding financial stability.

In Malaysia, the task of preserving financial stability has become increasing challenging against the backdrop of evolving financial landscape and increase in cross border inter-linkages arising from economic and financial integration. The Asian financial crisis was a defining moment for Malaysia and the wide-ranging financial reforms that followed have indeed paved the way for a more resilient domestic financial system. This research study aims to review Malaysia's

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approach in addressing risks to promote financial stability and to identify potential areas for further enhancements.

The paper is organised as follows:

Section 2: Financial landscape and regulatory structure in Malaysia.
Section 3: Malaysia's approach to assessing risks to financial stability *(macrosurveillance framework and tools, legislative framework and publication of financial stability report).*
Section 4: Financial safety net arrangements in Malaysia.
Section 5: Governance framework to support policies relating to financial stability.
Section 6: Assessment on Malaysia's approach to promoting financial stability.
Section 7: Recommendations and policy implications.
Section 8: Conclusion.

2. Financial Landscape and Regulatory Structure in Malaysia

2.1 Malaysian Financial Landscape

The Malaysian financial system has undergone significant transformation since the 1990s, driven by financial liberalisation and consolidation, economic transformation, technological advancement and more discerning consumers (Ghani, 2005). Today, the Malaysian financial system is more diversified, efficient and resilient. This has enabled the financial system to perform the intermediation function effectively and reinforce its role as a key contributor to economic growth. The Malaysian financial sector has grown by an average annual real growth rate of 7.1% since 2000 to contribute to 11.6% to real gross domestic product (GDP) as at end-2010.

The banking system continues to remain the largest component of the financial sector, accounting for about 50% of financial system assets (Table 1). Structural reforms undergone since the Asian financial crisis, however, have led to changes in the financial landscape and at the same time, contributed towards strengthening of fundamentals and resilience of the domestic financial systems. The blurring of the traditional boundaries between the different types of financial activities and increased consumer demand for financial services that are offered under one roof have brought about the formation of financial conglomerates (Bank Negara Malaysia, 2007a). Today, all domestic banking groups undertake the full range of commercial banking, investment banking and Islamic banking activities. Additionally, many of these conglomerates also provide insurance protection as

well as undertake fund management and management of unit trust funds within their groups. This evolution has yielded benefits, particularly in realising greater economies of scale as well as promoting diversification of risks and sources of revenue.

Operating in parallel with conventional finance, Islamic finance has gained prominence in the Malaysian financial system. The offerings of Islamic products by dedicated subsidiaries of banking groups and the entry of new foreign players in the Islamic banking, takaful and retakaful sectors contributed towards rapid growth in Islamic finance. Between periods 2006 to 2010, Islamic banking assets have expanded by a compounded annual growth rate of 19.3% to constitute 16.9% of total assets of the banking system as at end-2010. Over the same period, total assets of the takaful sector grew by a compounded annual growth rate of 20.8% to account for 8.7% of total assets of the insurance and takaful industry as at end-2010.

Table 1
Components of Assets of the Malaysian Financial System

	As of December 31,					
	2006	2007	2008	2009	2010	2010
	(RM billion)					(% share)
BNM	323.0	424.8	344.5	363.0	390.2	12.9
Banking system	1,092.9	1,221.4	1,333.8	1,426.2	1,546.5	51.0
Provident, pension and insurance funds	473.0	525.9	569.6	628.5	729.4	24.1
Provident and pension funds	357.6	394.7	428.0	467.4	548.5	18.1
Insurance funds	115.4	131.2	141.6	161.1	180.9	6.0
Development financial institutions	113.6	128.8	144.5	165.9	186.3	6.1
Other financial intermediaries	155.8	175.3	187.2	166.1	177.1	5.8
Total assets of the financial system	**2,158.3**	**2,476.4**	**2,573.3**	**2,749.7**	**3,029.4**	**100.0**

Source: Bank Negara Malaysia

Underpinned by strengthened institutional capacity, the past few years have also witnessed the expansion of domestic financial institutions' business operations abroad. Such ventures had enabled domestic financial institutions to diversify earnings capacity and to tap on the growing business opportunities within the region brought about by the increased liberalisation and integration amongst regional economies. Banking groups in Malaysia have more than 50 establishments across 19 countries abroad, with the asset size of these overseas operations accounting for 20% of total domestic assets as at end-2010.

Over the years, the Malaysian capital market has assumed a more significant role in mobilising and allocating resources to finance capital expenditures for both the public and private sectors. In the debt securities market, total outstanding debt securities increased from RM225 billion as at end-1999 to RM763.4 billion as at end-2010. Today, the Malaysian bond market is the largest in South East Asia and the third largest in Asia after Japan and Korea (Asian Development Bank, 2010). Total net funds raised by the private sector from the domestic equity and debt securities markets amounted to RM50.5 billion in 2010, more than double the amount of funds raised in 1999 (RM21.1 billion). Of significance also is the rapid growth in the issuance of sukuk. Malaysia has emerged to become the global leader in sukuk issuances, to account for more than 60% of global sukuk outstanding. This trend is broadly in line with the agenda to develop Malaysia as an international Islamic financial centre and a major centre for sukuk issuance, origination and trading (Bank Negara Malaysia, 2007a).

The other components of the financial markets, namely the equities, money, foreign exchange and derivatives markets have demonstrated improved performance over the past decade. The total market capitalisation of Bursa Malaysia has risen from RM553 billion as at end-1999 to RM1273 billion as at end-2010. The robust development of the money market has also facilitated the channeling of short-term funds between financial institutions to meet their funding and portfolio adjustment requirements. Total volume of transactions in interbank money market rose to RM1.5 trillion in 2010 (1999: RM1.4 trillion). Similarly, the foreign exchange market has witnessed an increase in transactions, including hedging transactions. Apart from being used as instrument for hedging purposes, derivatives are also used by financial institutions to further expand the variety of investment products offered to sophisticated clients. As at end-2010, the notional value of off-balance sheet foreign exchange and interest rate related derivatives contracts amounted to RM1.1 trillion.

2.2 Financial Regulatory Structure

In contrast to monetary stability, defining financial stability is less straightforward and there is currently no universally accepted definition for financial stability. According to Borio and Drehmann (2009), most definitions of financial stability however share three useful elements. First, they focus on the financial system as a whole, as opposed to individual institutions. Second, they do not consider the financial system in isolation, but ultimately measure the economic (welfare) benefits and costs in terms of the "real economy" (economic activity). Third, they make an explicit reference to financial instability, the converse of stability, which is more concrete and observable.

In Malaysia, Bank Negara Malaysia ("the Bank") is the key authority responsible for promoting financial stability. "Risk to financial stability" is defined in Central Bank of Malaysia Act 2009 as a risk which in the opinion of the Bank disrupts, or is likely to disrupt, the financial intermediation process including the orderly functioning of the money market and foreign exchange market, or affects, or is likely to affect, public confidence in the financial system or the stability of the financial system. As part of the mandate for financial stability, the Bank is responsible for the safety and soundness of financial institutions under its purview. This is achieved through prudential regulation and supervision of commercial banks, Islamic banks, investment banks, insurance and reinsurance companies as well as takaful and retakaful operators. Since 2002, the Bank also assumed responsibility for the regulation and supervision of six development financial institutions that are charged with specific mandates within the broader financial sector. The Bank also regulates insurance brokers, loss adjusters, money brokers and payment system operators. The primary focus of regulation and supervision is to promote the sound financial management and responsible business conduct of regulated institutions in the interest of depositors and policyholders, as well as to ensure effective financial intermediation process. Apart from microprudential supervision and regulation functions, the Bank also undertakes macroprudential surveillance function to facilitate the early identification of emerging threats and risks to financial system stability as well as the formulation and implementation of appropriate policy responses to preserve stability in the financial system. The Bank is also responsible for the promotion of a sound, progressive and inclusive financial system.

Meanwhile, the Securities Commission Malaysia is responsible for the promotion and maintenance of fair, efficient, secure and transparent securities and futures markets and facilitating the overall development of an innovative

and competitive capital market. The Commission is responsible for investors' protection and also ensures proper conduct of market institutions.

2.3 Role of Bank Negara Malaysia in Promoting Financial Stability

According to Schinasi (2007), the core objectives of a framework for safeguarding financial stability are the *prevention* and *resolution* of systemic financial problems. A key to prevention is the early identification of risks to stability and of potential sources of vulnerability in the financial system before they lead to unsustainable and potentially damaging imbalances and consequences. Meanwhile, the key to resolution is to have in place mechanisms and policy tools to remedy situations where the financial system seems to be in the early stages of moving towards instability. In the event where remedial measures fail, or undetected endogenous factors or unanticipated exogenous factors lead to instability, tools should be available for resolving problems and instabilities quickly and with minimum collateral damage, either to the financial system or the economy (Schinasi, 2007).

In Malaysia, the role of the Bank in promoting financial stability is multi-faceted and encompasses:

- Implementing of an **enhanced risk-based supervisory framework** with more granular assessments of individual institutions' unique risk profiles and risk management control functions, thus ensuring that supervisory attention continues to be proportionately focused on financial institutions that are of higher risk.
- Implementing a **robust and integrated macroprudential surveillance** framework to facilitate the early identification of emerging threats and risks to financial system stability.
- Achieving an **optimal balance between principle-based and rule-based regulation** to appropriately reflect the greater complexity and diversity of the financial sector, while having the agility to continuously adapt to changing economic and market conditions.
- Strengthening the conditions for **effective market discipline** to play a more important role in ensuring sound financial and business practices by financial institutions.
- Promoting **fair and equitable market conduct practices** in the financial services industry and promoting financial capability of consumers.
- Developing a **robust financial infrastructure** that is able to withstand adverse economic cycles and shocks, thereby preventing inordinate

disruptions to the intermediation process and maintaining confidence in the financial system.

- Implementing **comprehensive financial safety net** that encompasses ongoing prudential regulation and supervision by the Bank, the lender-of-last-resort facility provided by the Bank and a deposit insurance framework.

There is a dedicated division in the Bank that is accountable for ûnancial stability mandate, with functions distributed across several departments. In 2006, Bank Negara Malaysia embarked on a realignment of the regulatory and supervisory functions within the organisation to facilitate a more integrated, holistic and harmonised approach to regulation and supervision and thereby further strengthen the conduct of ûnancial stability within the Bank. The transformation exercise was undertaken following an extensive review of best practices in regulatory and supervisory approach, taking into account the distinctiveness and phase of development as well as the future development of the Malaysian financial system. Under the transformation exercise, the regulatory functions shifted away from sector specific demarcation of responsibilities toward functional lines. In particular, the functional responsibilities of the banking and insurance regulation departments were mapped into four new departments, which were respectively responsible for financial sector development, macroprudential surveillance, prudential regulation and consumer protection and market conduct regulation and supervision. While the sector specific supervisory approach was retained, a matrix reporting framework was adopted for the supervision of the financial institutions that are part of financial conglomerates so that an integrated approach to supervision and assessment of the risk profile can be undertaken on a group basis across the banking and insurance sectors. The new structure of the supervision sector also provides the necessary foundation for effective consolidated supervision to take place as the Bank adopts a more universal framework in its supervisory approach that is applicable across financial industries and moves towards principle-based and differentiated supervision (Bank Negara Malaysia, 2006).

2.4 Compliance with International Standards

The supervisory and regulatory framework is regularly reviewed and updated to adapt to changing market realities and takes into account developments in international standards and guidance. In 2012, Malaysia will undergo the International Monetary Fund and The World Bank Financial Sector Assessment Programme. This exercise will cover assessment of compliance with international standards and best practices for the banking, insurance and payments and securities settlement systems.

In line with the Basel Committee on Banking Supervision Core Principles for Effective Banking Supervision, with effect from 1 January 2008, 77% of banking institutions began adopting the Standardised Approaches for determining capital requirements. The remaining institutions, which intend to adopt the Internal Ratings-Based (IRB) approach for credit risk, were allowed to remain under the Basel I regime until 2010. In 2010, 11 banking institutions completed the transition to the IRB approach for credit risk under Basel II. With the transition, all banks in Malaysia now comply with the Basel II capital standards.

In 2007, a self assessment on Real-time Electronic Transfer of Funds and Securities (RENTAS) system was carried out against the Bank for International Settlement Core Principles for Systemically Important Payments Systems. The self-assessment concluded that the RENTAS system exhibited high level of robustness and came close to achieving full observance of the international standards (Bank Negara Malaysia, 2007).

The Securities Commission Malaysia voluntarily undertook an independent assessment by IOSCO in 2008 to benchmark its compliance against the International Organisation of Securities Commissions (IOSCO) Core Principles on Securities Regulation. The Malaysian capital market regulatory framework was assessed as fully compliant with virtually all of the IOSCO Principles. The assessment concluded that Malaysia fully complied with requirements of 28 out of 29 principles, and also with 18 out of 19 recommendations for Principle 30 on clearing and settlement. The Securities Commission Malaysia has continued to enhance its regulatory framework, processes and protocols in identified areas (Securities Commission Malaysia, 2009).

3. Malaysia's Approach to Assessing Risks to Financial Stability

3.1 Macroprudential Surveillance Function and the Use of Financial Resilience Indicators

The Asian ûnancial crisis highlighted the need for macro-level risk assessment to complement micro-level supervision and the need for assessment on cross-institutional and cross-sector risk transmissions. The development of the macroprudential surveillance framework in Malaysia has since gained momentum. In 2006, Financial Surveillance department was set up to further enhance the macroprudential orientation and conduct of surveillance in the Bank. The department is entrusted to undertake comprehensive and integrated macroprudential surveillance and assessments of emerging trends and vulnerabilities of the financial system to facilitate timely formulation of policies

and risk mitigation measures to preserve stability in the financial system. The focus of the Bank's macro-surveillance activities encompasses (Bank Negara Malaysia (2007)):

- monitoring macro-financial linkages associated with developments and emerging trends in the external sector, domestic economy and financial markets, and corporate and household sectors, as well as assessing their potential contagion implications for the financial system; and
- monitoring and evaluating the development of sector specific issues within the financial sector and the potential implications for overall system wide stability.

Macrosurveillance analysis takes into account both quantitative and qualitative information using static and trend analyses as well as forward- looking tools. A wide-range of indicators is employed by the Bank in monitoring the health of financial institutions and markets, and of their corporate and household counterparts. These indicators were chosen following a review of Financial Soundness Indicators developed by the International Monetary Fund (IMF) and benchmarking of indicators used by other countries, taking into account the distinctiveness of the Malaysian financial landscape. Some examples of financial soundness indicators used in macroprudential surveillance are set out in Table 2.

As part of its overall surveillance framework, the Financial Surveillance also works closely with the supervisors to ensure the effective coordination of micro- and macroprudential approaches in the overall financial stability framework in order to support the comprehensive assessment of risks and the design of effective policy responses to respond to identified risks. This is achieved through established formal governance arrangements, at both the working level and decision-making level through working and surveillance groups, as well as policy committees.

The macroprudential surveillance framework is further supported by collaborative mechanisms within the Bank and with other domestic regulators (e.g. the Securities Commission Malaysia and Perbadanan Deposit Insurans Malaysia) to facilitate robust assessment of the risks emanating from domestic and international developments on the overall stability and functioning of the ûnancial system. At the regional level, the Monetary and Financial Stability Committee, under the aegis of Executives' Meeting of East Asia-Pacific Central Banks, have enhanced collaboration and cooperation in managing macroprudential issues and risk of contagion at the regional level.

3.2 Use of Forward Looking Tools as Supporting Tools for Monitoring Financial Stability

The enhancement in forward-looking capability of the Bank's surveillance framework has been accorded priority. Various forward-looking quantitative tools have been developed over the years to supplement other surveillance tools within the Bank's framework.

The Vulnerability Indicator for Banking Sector (VIBeS), for example, is a composite of risk indicators that measures the intensity of systemic distress at a particular point in time. Constructed using information derived from macroeconomic and financial imbalances, the VIBeS assists in forecasting future conditions in the banking sector and hence, enable early prognosis of distress build-up prior to the occurrence of a crisis (Bank Negara Malaysia, 2007b).

Various other risk indicators were also developed to enhance the robustness of risks assessment in the corporate sector, which may have an impact on the stability of the overall financial system. The z-score for emerging markets, distance to default and expected default frequency models are being adopted in the Bank's surveillance framework to assess future credit risk of the corporate sector (Bank Negara Malaysia, 2008).

The use of scenario analyses and stress testing tests to assess the resilience of a financial system to exceptional but plausible macroeconomic shocks also constitute an integral part of the Bank's surveillance tools. These scenario-based tests on credit, market and liquidity risks are conducted at both the system and individual institution levels to provide a forward-looking assessment of the capacity of financial institutions to withstand potentially adverse and significant macro-financial shocks. Efforts are being undertaken on an on-going basis to enhance the robustness of scenario analysis and stress testing methods. This includes enhancements in assessing the dynamics of interbank linkages, the potential contagion paths and the degree of liquidity spillovers within the banking system.

3.3 Legislative Framework

Having in place a robust and dynamic legal framework is critical to ensure that the central bank has adequate capacity to manage emerging risks and challenges and hence, deliver its financial stability mandate effectively. This also includes enhancing the ability of the central bank to expand the regulatory perimeter as may be needed to manage the build up in systemic risks emanating from beyond the regulated sectors.

The new Central Bank of Malaysia Act 2009 (CBA) that was brought into force in November 2009 enhances the capacity of the Bank to undertake macro-prudential surveillance and to respond directly and swiftly to potential threats in financial stability. The CBA explicitly recognises the ûnancial stability mandate of the Bank. In delivering the ûnancial stability mandate, the Bank is entrusted with the responsibility to regulate and supervise ûnancial institutions under its purview, provide oversight over the money and foreign exchange markets, exercise oversight over the payment systems and promote a sound, progressive and inclusive ûnancial system. The CBA enhances the capacity of the Bank to collate, assess and monitor critical information, which supports the conduct of more effective and holistic surveillance, covering both regulated and non-regulated institutions and markets in the ûnancial system. Should the need arise, the Bank will be able to take the necessary intervention and resolution measures to mitigate risks that stem from regulated and non-regulated entities. The enhanced oversight function and powers to address ûnancial stability concerns are complemented by a strengthened governance, transparency and accountability framework (Bank Negara Malaysia, 2009b).

Table 2
Key Financial Soundness Indicators

	As at end				
	2006	2007	2008	2009	2010*p*
	% (or otherwise stated)				
Banking System					
Risk-Weighted Capital Ratio	13.5	13.2	12.6	15.4	14.8
Core Capital Ratio	10.7	10.2	10.6	13.8	13.0
Return on Assets	1.3	1.5	1.5	1.2	1.5
Return on Equity	16.2	19.8	18.6	14.0	16.5
Liquid Assets to Total Assets	8.0	9.3	10.3	11.5	12.8
Liquid Assets to Short-term Liabilities	10.3	11.8	13.1	14.5	16.4
Net Non-performing Loans Ratio	4.8	3.2	2.2	1.8	2.3
Duration Weighted Net Position to Capital Base	7.5	4.4	3.8	5.0	4.9
Net Open Positions in FX to Capital Base	4.7	5.1	5.2	4.4	3.8
Net Open Positions in Equities to Capital Base	2.5	2.5	0.9	0.9	1.2
Insurance Companies					
Capital Adequacy Ratio	139.6	158.4	187.6	225.7	224.6
Life Insurance & Family Takaful					
Excess of Income over Outgo (RM billion)	12.2	14.8	8.8	12.7	14.3
New Business Premiums / Contributions (RM billion)	8.6	9.3	9.4	10.0	11.2
Capital Adequacy Ratio (conventional only)	146.1	151.8	200.0	254.4	253.2
General Insurance & General Takaful					
Underwriting Profit (RM billion)	0.5	-0.1	0.2	0.9	0.9
Operating Profit (RM billion)	1.5	1.4	0.8	2.1	2.2
Gross Direct Premiums / Contributions (RM billion)	10.5	11.0	12.0	12.8	14.1
Claims Ratio	60.0	65.0	61.2	60.3	62.3
Capital Adequacy Ratio (conventional only)	182.8	182.1	181.1	184.9	204.4
Household (HH) Sector					
HH Debt (RM billion)	395.5	429.4	472.1	516.6	581.3
HH Financial Asset (RM billion)	978.3	1,160.0	1,067.3	1,225.8	1,386.0
HH Financial Assets to Total HH Debt Ratio	247.4	270.1	226.1	237.3	238.4
HH Debt to GDP Ratio	68.8	66.9	63.7	76.0	75.9
HH Liquid Financial Assets to Total HH Debt Ratio	151.7	172.6	139.4	150.9	153.9
Debt Service Ratio	39.1	41.1	39.5	49.0	47.8
Non-performing Loans Ratio of Household Sector	7.1	5.3	4.1	3.1	2.3
Corporate Sector					
Return on Assets	5.1	5.7	3.7	4.2	4.4
Return on Equity	10.0	11.4	7.3	7.9	8.7
Debt-to-Equity Ratio	50.3	48.1	54.1	50.3	45.6
Interest Coverage Ratio (times)	4.6	5.4	4.3	5.1	5.9
Operating Margin	10.9	10.8	9.3	10.5	12.1
Non-performing Loans Ratio of Business Sector	10.2	8.0	6.0	4.7	5.2
Development Financial Institutions*					
Lending to Targeted Sectors (% change)	17.5	18.7	16.3	18.5	13.3
Deposits Mobilised (% change)	11.1	12.4	18.5	14.4	20.5
Non-performing Loans Ratio	10.0	8.8	6.6	6.8	8.5
Return on Assets	1.5	1.9	2.9	2.3	2.2

p = Preliminary * Refer to development financial institutions under the Development Financial Institutions Act 2002

Source: Bank Negara Malaysia, Financial Stability and Payment Systems Report 2010

3.4 Publications Relating to Financial Stability

The Bank has, since 2007, begun to publish Financial Stability and Payment Systems Report that communicates the outcome of its macroprudential risk assessment and to highlight emerging sources of vulnerabilities. The report is published on an annual basis and seeks to promote greater awareness and understanding of issues pertaining to financial system stability, and where appropriate, to induce adjustments in behaviours of ûnancial institutions and market participants to better manage the build-up of systemic risks. Apart from risk assessments, the report also highlights risk-mitigating measures introduced by the Bank to strengthen the resilience of the system against any threats to its stability. In addition to the annual publication, the monthly statistical and quarterly bulletins also provide periodical updates on the risk assessment of the Malaysian financial sector.

4. Financial Safety Nets

Comprehensive financial safety nets form an integral part of financial a stability framework. Without comprehensive financial safety nets in place, any news or rumours of solvency or liquidity problems faced by one or more financial institutions may lead to bank runs, causing a liquidity crisis and potential contagion effect on the banking system (Sabourin, 2006). There is however no generally accepted definition of the key elements of the financial safety net. A narrow definition is limited to deposit insurance and a lender-of-last-resort function whilst a broader one may also include prudential regulatory and supervisory framework as well as failure resolution mechanisms for financial institutions (Schich, 2008).

In Malaysia, the introduction of a **deposit insurance system** was identified in the 10-year Financial Sector Master Plan in 2001. A deposit insurance taskforce was subsequently established by Bank Negara Malaysia to study and compare best practices of established deposit insurance systems in other countries. The Malaysia Deposit Insurance Corporation Act (PIDM Act) was passed by the parliament in July 2005. Shortly after, the Perbadanan Deposit Insurans Malaysia (PIDM) was established in September 2005 to administer a deposit insurance system in Malaysia. PIDM is a separate independent entity from the Bank and has the mandate to (i) administer a deposit insurance system; (ii) provide insurance against the loss of part or all deposits of a member institution; (iii) provide incentives for sound risk management in the financial system; and (iv) promote or contribute to the stability of the financial system. In achieving these objects, PIDM is required to act in such manner as to minimise costs to the financial system.

Whilst Bank Negara Malaysia is the primary regulator and supervisor of the banking institutions, PIDM complements the Bank's role and contributes to the stability of the financial system via the management of deposit insurance system. In this regard, an effective collaborative and coordination framework between the Bank and PIDM is critical to ensure that both agencies to carry out their respective functions effectively as well as to minimise duplication of roles and reporting requirements within the financial safety net. The PIDM Act specifically enables PIDM to enter into a strategic alliance agreement with the Bank to promote financial system stability. The strategic alliance agreement provides for a structured collaboration between both agencies to share information on key issues and developments to facilitate the operations of PIDM. Information exchange platforms, both formal and informal, have been put in place to facilitate timely exchange of information to support and enable PIDM to fulfill its mandated role. Additionally, both agencies also ensure close collaboration and coordination in ensuring that any intervention and resolution actions instituted by the deposit insurer would not result in detrimental effects of the system as a whole. These resolution powers would be invoked by the deposit insurer following notification by the Bank that a member institution was likely to cease to be viable (Aziz, 2007). A new Malaysia Deposit Insurance Corporation Act 2011 came into force on 31 December 2010. Under the new legislation, the coverage of the deposit insurance system is extended and increased. The mandate of the PIDM has also been expanded to include the administration of Takaful and Insurance Beneûts Protection System, which will provide better protection for insurance policyholders and takaful participants.

The availability of effective **intervention and resolution mechanism and tools** is another component of Malaysia's financial safety net. This is critical to ensure that the Bank has the capacity to deal with distressed institutions or markets, expeditiously and effectively and hence, minimise the ultimate costs to the ûnancial system and economy. The rapid expansion of cross-sector and cross-border linkages implies greater scope for ûnancial contagion and underscores the importance of coordinated policy response amongst different agencies. In this regard, the CBA provides for coordination and cooperation arrangements with other supervisory authorities at both the national and international levels (Bank Negara Malaysia, 2009b). The capacity of the Bank to extend liquidity assistance is further enhanced with the coming in force of the CBA. The CBA enables the Bank to use a broad range of instruments to provide liquidity assistance, including to entities that are not regulated by the Bank or to overseas subsidiaries or branches of Malaysian ûnancial institutions, in order to contain liquidity shocks to ûnancial institutions more effectively and prevent material

disruptions to the functioning of the ûnancial system and its stability (Bank Negara Malaysia, 2009b).

5. Governance for Financial Stability Policy Decisions

A robust strengthened governance and accountability framework is critical to ensure that integrity of policy actions undertaken is maintained. Within Bank Negara Malaysia, macroprudential issues and policy recommendations can be spearheaded by any regulatory and supervisory departments under the ûnancial stability division of the Bank, depending on the sources and nature of the emerging threats or issues. These issues will ûrst be deliberated among the departments at a technical level. Where necessary, the issues would be escalated to the Financial Stability Policy Committee (FSPC), a high-level forum that is responsible for the assessment of risks to ûnancial stability arising from both system-wide and institutional developments, and decisions on the appropriate policy responses. The FSPC is chaired by the Governor, with membership comprising the Deputy Governors and selected Assistant Governors involved in ûnancial stability functions (Bank Negara Malaysia, 2009a). In arriving at policy decisions and in designing the speciûc policy responses, the FSPC takes into account the potential trade-offs and spillovers of such actions to the wider economy as well as any longer-term consequences to the ûnancial system. Policy deliberations for macroprudential responses that can have a wider impact on macroeconomic and monetary conditions would be jointly deliberation with members of the Monetary Policy Committee of the Bank (Bank Negara Malaysia, 2010a).

With the coming in force of the CBA, the Financial Stability Executive Committee (FSEC) has been operationalised with the mandate to approve proposals by the Bank to take actions to avert a risk to ûnancial stability where it concerns entities that are outside the regulatory perimeter of the Bank or for the resolution of systemically important ûnancial institutions. The FSEC consists of the Governor, one Deputy Governor and three to ûve other members appointed by the Minister of Finance upon the recommendation of the Bank's Board of Directors. The FSPC is responsible for making specific recommendations to the FSEC on the appropriate intervention and resolution actions and monitoring the implementation of approved actions as commissioned by the FSEC (Bank Negara Malaysia, 2010b).

6. Assessment on Malaysia's Approach to Promoting Financial Stability

Having only experienced the Asian financial crisis in the late 1990s, Malaysia was not spared from the impact of the recent global crisis given its trade and

investment linkages with the rest of the world. The Malaysian financial system, however, has demonstrated remarkable resilience throughout the crisis having entered the crisis with stronger economic and financial fundamentals. Indeed, the decade long reforms and enhancement in the domestic financial stability framework has yielded positive results, particularly in increasing the level of preparedness and resilience to unprecedented shocks to the economy and to the financial system.

The Asian financial crisis has demonstrated that a robust microsurveillance function alone is not sufficient to mitigate overall risks to financial stability and hence, the need for macro-level risk assessment to complement micro-level risk assessment. Additionally, there is also a need for assessment on cross-institutional and cross-sector risk transmissions. In this direction, the strengthening in the Bank's macroprudential surveillance over the past few years, in terms of building of human capacity and surveillance infrastructure, have been critical in ensuring timely detection of emerging risks and this subsequently have translated into relevant policy measures to mitigate risks to financial stability. Further, strengthening in collaborative mechanisms between the Bank and domestic regulators as well as regional central banks also contributed towards enhancement in the Bank's surveillance function. The publication of financial stability reports has also been critical towards raising the awareness, particularly among financial institutions, on issues relating to financial system stability, and at the same time, contributing towards preserving market confidence. In addition, the establishment of deposit insurance scheme has also help to further reinforce confidence in the domestic financial system. Although efforts and measures put in place to strengthen the building blocks for financial system stability has yielded positive results, there is a need to avoid complacence. It needs to be recognised that any surveillance framework is not fool proof whilst available tools are not exhaustive and hence, needs to be reviewed from time to time to ensure continued relevance.

7. Recommendations and Policy Implications

Global financial systems are likely to continue to be affected by crisis going forward. Risks to financial stability are not static and are expected to evolve with the changes in financial and economic landscape and the nature and dynamics of financial interlinkages over time. As such, there is a need to ensure that financial stability frameworks is dynamic and continues to remain relevant to cope with new risks and challenges.

First, there is a need to enhance surveillance capacity to **ensure that the assessment of risks to financial stability continues to be forward looking**.

This is critical to ensure timely detection of any potential risks and vulnerabilities in the financial system and hence, translate into swift and pre-emptive policy measures to mitigate the build up of risks. Second, with the expectation for continued deepening in economic and financial integration, **surveillance of potential risks emanating from external sectors** needs **to be strengthened** further. This includes improvement in collection of information pertaining to counterparty exposures and better understanding of the nature and extent of interlinkages and channels of risk transmissions between the domestic and external sectors. Thirdly, there is a need to further **strengthen cross border intervention and resolution frameworks,** particularly with the growing presence of domestic financial institutions abroad as well as establishment of foreign financial institutions on the domestic shores. Forth, the **scope of surveillance** also needs to be expanded to take into account **non-regulated sectors** that are increasingly playing a more critical role in the financial intermediation process, are becoming more interconnected with the financial system and poised to even assume a that more signiûcant role in the ûnancial system going forward. Fifth, there is a need for continuous **enhancements in financial stability communications.** Unlike communication strategy on monetary policy issues, communication with regard to financial stability is still very much in its infancy stage of development. Further enhancements in the design of financial stability communication is critical to achieve an appropriate balance between providing information to market participants and the public at large whilst at the same time, preserving confidence and achieving financial stability outcomes. Additionally, the effective design in communication strategy can also strengthen the role of financial stability communication in inducing changes in behaviours of financial institutions and market players and hence, mitigate build up in systemic risks.

8. Conclusion

The domestic financial system is expected to continue to be confronted with challenges moving forward. Given the deepened inter-linkages of the Malaysian economy and ûnancial system with the rest of the world, the still fragile global macroeconomic and financial conditions remain a key challenge to preserving financial stability on the domestic front. Additionally, large and volatile portfolio inflows into the region will continue to pose challenges to the management of liquidity in regional economies, including Malaysia. The ample domestic liquidity environment may continue to exert pressure on financial institutions to generate returns. Whilst the enforcement of responsible lending will act to counter overly aggressive behaviours by ûnancial institutions, there is a need to appropriately manage the significance of non-bank lenders to avoid excessive build-up of leverage among certain borrower segments. Another challenge to maintaining

financial stability relates to the rising food and commodity prices. Such risk developments translate into higher cost of living and cost of production and hence, may pose challenges to debt servicing capacity of some segments.

Against these challenging operating environment, the Bank has already identify several key areas of surveillance and supervision, moving forward, to ensure that domestic financial stability continues to be preserved. First, to ensure prudent and responsible risk-taking by financial institutions through greater supervisory attention on financial institutions' risk-taking behaviours and effectiveness of risk management and control functions. Second, to ensure sustainable household consumption and debt repayment capacity through greater emphasis on inculcating responsible borrowing behaviours. Third, to enhance risk assessment on entities with systemic implications in the financial system, including monitoring developments in the activities of entities that are outside the regulatory perimeter of the Bank. Forth, to understand and assess the impact to financial stability and behaviours of financial institutions to changes in regulatory and accounting environment, including the enhanced capital and liquidity requirements under Basel III and changes to international financial reporting standards. Fifth, to pursue more active and closer domestic, regional and global cooperation and coordination to enhance the identification of risks and further strengthen the Bank's readiness to deal with emerging risks to financial stability.

References

Aziz, Z. A. (October, 2007), Keynote Address at Deposit Insurance and Consumer Protection, 6th International Association of Deposit Insurers Annual Conference

Borio C. and Drehmann M., (2009), "Towards an Operational Framework for Financial Stability: "Fuzzy" Measurement and its Consequences", *BIS Working Papers* No 284.

Čihák M., (2009), Financial Soundness Indicators Financial Stability Reports.

Ghani, Z. A., (2005), "Enhancing Competitiveness to Meet Strategic Challenges", Speech Presented at the 9th Malaysian Banking Summit 2005, May 2005, Malaysia.

Hoggarth G., Reis R. and Saporta V., (2001), "Costs of Banking System Instability: Some Empirical Evidence", *Bank of England Working Paper* No. 144.

Ismail, Z., (2001), "Adoption of International Association of Insurance Supervisors (IAIS) Insurance Core Principles in Malaysia's Insurance Sector", Seminar on the Implementation of International Financial Standards in Asia

Malaysia Deposit Insurance Corporation, Deposit Insurance System in Malaysia.

Sabourin J. P., (2006), "Deposit Insurance as an Integral Component of Financial Safety Net", Speech, May 2006.

Schich S., (2008), "Financial Crisis: Deposit Insurance and Related Financial Safety Net Aspect", *OECD Financial Market Trends.*

Schinasi G. J., (2007), "Understanding Financial Stability: Towards a Practical Framework"

Asian Development Bank, AsianBondsOnline

Bank Negara Malaysia, (2006), "Realignment of Regulatory and Supervisory Functions", Financial Stability and Payment Systems Report 2007.

Bank Negara Malaysia, (2007), Financial Stability and Payment Systems Report 2007.

Bank Negara Malaysia, (2007a), "The Landscape of the Malaysian Financial System Today", Financial Stability and Payment Systems Report 2007

Bank Negara Malaysia, (2007b), "Enhancing the Surveillance Framework - Forward Looking Indicator of Banking System Vulnerability", Financial Stability and Payment Systems Report 2007.

Bank Negara Malaysia, (2008a), "Forward-Looking Measurement of Corporate Sector Soundness", Financial Stability and Payment Systems Report 2008.

Bank Negara Malaysia, (2008b), "Prudential Regulation and Supervisory Framework", Financial Stability and Payment Systems Report 2008.

Bank Negara Malaysia, (2009), Financial Stability and Payment Systems Report 2009.

Bank Negara Malaysia, (2009a), "Macroprudential Approach to Financial Surveillance and Regulation in Malaysia", Financial Stability and Payment Systems Report 2009.

Bank Negara Malaysia, (2009b), "Safeguarding Financial Stability under the Central Bank of Malaysia Act 2009", Financial Stability and Payment Systems Report 2009.

Bank Negara Malaysia, (2010a), Financial Stability and Payment Systems Report 2010.

Bank Negara Malaysia, (2010b), Annual Report 2010.

Bank Negara Malaysia, (2011), Monthly Statistical Bulletin, January 2011.

Securities Commission Malaysia, (2009), The Malaysian Capital Market: Summary of Compliance with International Standards and Transparency <http://www.sc.com.my/main.asp?pageid=721&menuid=861&newsid=&linkid=&type=>

Malaysia Deposit Insurance Corporation, Deposit Insurance System in Malaysia, <http://www.pidm.gov.my/downloads/pidm_slides.pdf>

Chapter 5

FINANCIAL STABILITY IN FEDERAL DEMOCRATIC REPUBLIC OF NEPAL

By
Dipak Raj Lamichhane[1]

1. Introduction

1.1 Background

The 1990s was marked by a process of integration of emerging market economies with global capital and currency markets. Domestic financial markets became much more liberalized and international linkages also grew remarkably. A central feature of this process has been the increasingly free movement of capital across national boundaries. To the extent that they take place in well functioning, competitive markets and respond to proper price signals, capital flows imply benefits in terms of efficient provision of financial services and efficient allocation of resources and risks. Such benefits translate over time into faster economic growth and higher employment than would otherwise be the case. However, associated with these developments is a heightened tendency for financial instability, which manifested itself in increased volatility of capital flows, asset price misalignments and international contagion, and even sporadic crises. Both the frequency and severity of international financial crises seem to have been rising over the last decade. Financial crises have increasingly led to severe economic disruption, increase in unemployment and return to poverty for many in some economies including historically vulnerable Nepalese economy.

The experience of recent financial crises confirms the strong interrelationships between macroeconomic instability and financial instability. Financial stability requires both macroeconomic stability and structural policies

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and conditions consistent with a sound and efficient domestic financial sector. Nepal is paying increased attention to monitoring the governance, health and efficiency of financial institutions and markets and to macroeconomic and institutional developments that pose potential risks to financial stability.

1.2 Financial Stability

There is as yet no generally accepted definition of financial stability. Nonetheless, financial stability is understood to apply to both institutions and markets. Financial stability[2] requires that:

a. The key institutions in the financial system are stable, in that there is a high degree of confidence that they can continue to meet their contractual obligations without interruption or outside assistance; and
b. The key markets are stable, in that participants can confidently transact in them at prices that reflect fundamental forces and that do not vary substantially over short periods when there have been no changes in the fundamentals.

Stability in financial institutions means the absence of stresses that have the potential to cause measurable economic harm beyond a strictly limited group of customers and counterparties. Banking institutions are the key financial institutions and central ones to the smooth functioning of the financial system and their failure would cause a systemic crisis via greater susceptibility to runs and the operation of the payments system.

The money, foreign exchange, government securities, corporate bond markets, and equity and derivative markets should also be stable. The rapid growth of the financial market in Nepal may pose greater susceptibility to stability. Financial markets impact through wealth effects as financial asset prices change; changes in the expected returns on saving and investment or through a more generalized impact on consumer and business confidence.

Financial instability occurs when shocks to the financial system interfere with information flows so that the financial system can no longer do its job of channeling funds to those with productive investment opportunities.

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2. Andrew Crockett 1997 (a) "Why is Financial Stability a Goal of Public Policy" (b) "The Theory and Practice of Financial Stability", Essays in International Finance, Princeton University.

Indeed, if the financial instability is severe enough, it can lead to almost a complete breakdown in the functioning of financial markets, a situation, which is then classified as a financial crisis (Mishkin, 1999)[3]. This is a more precise way of explaining the generalized loss of confidence that lies behind the rush for "secure" assets and the disintermediation that characterizes periods of extreme financial stress in the banking system.

1.3 Issues of Financial Stability

The deposit taking financial institutions dominate the financial system of Nepal. Among these institutions, the banking sector's share in the total deposits and lending is more than 2/3. Therefore, the main issues regarding financial stability in Nepal that necessitate promotion and improvement of the financial stability are explained as follows.

1. Rapid financial sector liberalization unsupported by measures to encourage prudent risk management in the financial sector is mainly responsible for potential financial instability in Nepal. Financial liberalization usually lowers the cost of capital, increase in returns to savers, provides improved opportunities for risk diversification, and increases market discipline. Nonetheless, the real triggering factor for the banking crises and financial instability is not the financial liberalization but a piecemeal approach that alters only one side of risk taking equation, i.e. the potential gains to risk taking, without altering the other side, the costs of bringing a bank closer to insolvency.
2. Poor and inadequate supervision of banks and financial institutions due to lack of skilled human resource, advanced technology and modern supervisory infrastructure which have motivated banking and insurance institutions to perform at their own discretion, seeking short term profits only and hideouts the transactions which eventually contribute to the firm's specific financial distress leading to contagion effect on the financial system.
3. Weak market discipline in the banking and other corporate sectors is also a pressing issue in Nepal. The international best practices of corporate disciplines have not been fully complied with which has made the banking, insurance and securities market more vulnerable to the internal weaknesses caused from their own indiscipline.

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3. Mishkin, Frederick , (1999), "Asymmetric Information and Financial Crises: A Developing Country Perspective", Paper Prepared for the World Bank Annual Conference on Development Economics, Washington, D.C.

4. There is excessive credit creation in the system that has hard hit the poor people due to high inflation. The unsound, shortsighted and speculative financing of the unproductive sectors of the economy has been having major implications on the banking system with plausible asset price bubbles, booms and busts in the economy with the lack of predictability and certainty. Despite the regulations and supervision of NRB and other regulators in their respective jurisdiction, the banks and financial institutions and other insurance companies have poor corporate governance such as connected lending, weak internal control and low level of transparency. For instance, the BFIs that failed or liquidated or faced NRB's action in the past had poor corporate governance records.
5. In addition to the above issues; unsustainable macroeconomic policies, such as loose monetary policy and excessive fiscal spending; lack of effective implementation of bilateral and multilateral agreements made in the SAARC region and WTO; inadequate financial disclosure arrangements, including poor quality accounting, auditing standards and legal frameworks for the financial system; dismal and weak macroeconomic policies, especially monetary policy and regulation; channeling of billions of rupees in real estate, housing and speculative purposes by the co-operatives not in NRB's regulatory and supervisory purview and political instability have also been the issues of financial instability.
6. However, exchange rate pegging with Indian currency has served as a better cushion to keep the exchange rate market stable with inherent challenges.
7. Broadly private sector greed and public corruption have created diseconomies in the proper allocation of financial resources that eventually put pressure on financial stability[4].

1.4 Supporting Policies for Promoting Stable Financial Systems

The broad range of factors that can contribute to financial crises suggests the need for an equally broad set of policy responses. In the Nepalese context, the following policies have been adopted to promote financial stability.

1. NRB is ever effortful, as mandated and entrusted by its Act, for the sound, sustainable and credible macroeconomic policies, including a monetary policy aimed at promoting price stability which is the primary requirement for

4. Kaufman, George, (1995), "The US Banking Debacle: An Overview and Lesson", Financier 2:9-26.

financial stability. Similarly, economic policies those are supposed to minimize distortions to relative prices and that encourage efficient allocation of resources; credible exchange rate policy that facilitates macroeconomic adjustment and builds in incentives for financial institutions to hedge against currency risk; policies to encourage banks to manage their risks prudently, including corporate governance and financial disclosure; policies to encourage effective market disciplines in the financial sector; policies to promote robust payment systems and minimize inter-bank contagion, viz netting arrangements, real time gross settlement and failure-to-settle structures within the payment system; effective and well-enforced banking supervision arrangements; enforce the compliance to market discipline to supplement regulatory discipline; increase the stress on accuracy and truth in accounting and reporting to make private markets work better and enhance the responsiveness and accountability of bankers and regulators; increase transparency and disclosure of bankers' and regulatory agencies' activities and financial system regulators are more independent from political influence and subject to greater accountability to the public; are the achievements in policy fronts which are supportive policies for promoting stable financial systems in Nepal.

2. On the fiscal side, the Government of Nepal observes the pragmatic budgeting system that ensures balanced development of different socio-economic and financial infrastructure.
   It has endeavored for an effective legal and judicial system, facilitating the enforcement of legal contracts.
3. The joint effort of the Government and the independent regulators of banking, insurance and securities market for providing sufficient private capital to absorb licensed institutions' losses and adverse exogenous shocks, privatization of state owned banks and other enterprises fully and completely, permission for foreign ownership of banks to augment domestic private capital and intensify competition, improvement in the legal system, particularly bankruptcy and debt recovery laws and improvement in the bank infrastructure, including the training and sophistication of both bankers and bank regulators are also supportive measures for maintaining financial stability.

1.5 The Objectives and Importance of the Study

The objectives and importance of the study on addressing risk in promoting financial stability in Nepal are to:

(i) Understand financial stability framework of Nepal,
(ii) Review existing policies and regulations that are intended to address risks in financial stability, and
(iii) Identify and address risk factors in promoting financial stability.

2. Financial Stability in Nepal

The growth of banks and financial institutions concentrated in the urban area with huge credit flows to unproductive sector viz, real estate and housing has created undue pressure in the financial sector for the last decade. The growth of credit flows was to be channeled to the productive sector, which unfortunately did not take place in Nepal causing a misallocation of scarce resources, economic inequality, negative balance of payment and high inflation.

"After years of macroeconomic stability, Nepal's economy is experiencing a substantial, albeit somewhat delayed, impact of the global crisis, which is exposing the economy's structural weaknesses. External and financial sector risks have risen as evidenced by the significant deterioration of the current account, the reserve decline, wavering confidence, and banking sector liquidity stress"[5].

2.1 Current Scenarios including History and Development

2.1.1 Overview of the Nepalese Financial Sector

With economic liberalization initiated in mid-1980s, the Nepalese financial system witnessed significant developments[6]. As of October 2010, the financial system consists of 30 commercial banks, 82 development banks, 82 finance companies, 21 micro finance development banks, 15 saving and credit cooperative societies involved in limited banking activities, 45 nongovernmental micro-credit institutions, 1 stock exchange with the network of brokers and securities dealers, 25 insurance companies, 1 employees' provident fund, 1 credit guarantee and deposit insurance corporation, and 1 citizen investment trust. Of these institutions, the commercial banks, development banks, finance companies, micro finance development banks, some of the cooperatives and NGOs are under the regulatory framework of Nepal Rastra Bank (NRB).

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5. International Monetary Fund Executive Board's Conclusion, 2010. "Article IV Consultation with Nepal", Public Information Notice (PIN) No. 10/75. June 17, 2010.
6. Nepal Rastra Bank, (2010), Current Macroeconomic Status, Mid October, Kathmandu.

While the insurance board regulates the insurance companies and the securities board regulates the stock exchange, the other institutions are under the overall regulation of the government.

2.1.2 Major Achievements in the Past

The following are the major achievements during the last two decades contributing to the financial system.

(i) Legislative Reforms

- The new NRB Act was enacted on January 30, 2002 which provided more autonomy, authority and accountability to the central bank.
- The Debt Recovery Act, 2002 helped to establish debt recovery tribunal (DRT in 2003.
- Banks and Financial Institutions Act, 2006 has been enacted combining the fragmented legal bases such as Commercial Bank Act, Finance Companies Act, Development Bank Act and other laws governing deposit-taking financial institutions.
- Other legislations:

To enhance the legislative regime, Public Debt Act and Foreign Exchange Regulation Act, Company Act, Money Laundering Prevention Act, Banking Offence and Punishment Act, Insolvency Act, Financial Intermediary Act has been promulgated.

(ii) Regulatory Reforms

NRB has formulated and issued various prudential regulations for implementation in order to ensure a safe, sound and efficient financial system. NRB has adopted the proactive strategy.

The Institute of Chartered Accountants of Nepal has enforced Nepalese Accounting and Auditing Standards in the line of International Auditing and Accounting Standard.

(iii) Capacity Building in Regulation, Supervision and Inspection

A series of activities have been launched for strengthening the supervisory capabilities capability in Human Resource Management, Accounting, Auditing, and Bank Regulation and Restructuring aspects of the NRB.

2.1.3 Developments in the Securities Market

The financial sector also includes insurance, money and capital markets. The insurance business has been flourishing encouragingly over the last few years. There are already 25 insurance companies regulated by the Insurance Board. The Securities Exchange Board (SEBO) is the regulator of capital/

securities markets. The liberalization process during the 1990s accelerated the development of the securities market. There are 27 stockbrokers, 2 securities dealers and 9 issue managers providing securities market intermediation services. SEBO has approved more than 200 public issues to raise funds. There are more than 160 listed companies in the stock exchange. At the end of FY 2002/03, market capitalization as a percentage of GDP was 8.2% while at mid October 2010, it is 26.9%.

2.1.4 Problems in Securities Market Development

Existing securities legislation lacks clear and adequate provisions for securities market regulation. There is a lack of full autonomy and independence of the regulator from government intervention. There is also duality in regulation, lack of clear demarcation between regulatory functions of the SEBO and NEPSE, overlapping regulatory provisions and lack of basis of co-ordination between SEBO and other regulators, inadequate enforcement provisions, lack of provisions regarding the establishment of market infrastructures, lack of clear entry and exit norms for securities market intermediaries, lack of provisions to regulate market intermediaries' services like share registration, underwriting etc., and lack of regulation for the operation of collective investment scheme, dominance of equity shares in the securities market, etc.

To address the securities market issues, the following strategies are of priority:

(i) Strengthening regulatory system and institutional capability of SEBO,
(ii) Mutualizing/ Privatizing Stock Exchange,
(iii) Further automating and expanding transactions of stock trading system,
(iv) Establishing central depository system (CDS) of securities,
(v) Professionalizing market intermediaries services,
(vi) Integrating government securities trading to the securities market.

2.2 Organization and Institution

2.2.1 Structure/Nature of Financial Market

The Nepalese financial market consists of 265 banks and non-banks financial institutions licensed, regulated and supervised by NRB, 25 life and non-life insurance companies licensed, regulated and supervised by Insurance Board, one stock exchange under the regulation of Securities Board of Nepal, Employee Provident Fund and Citizen Investment Trust regulated and supervised by Government of Nepal. The Nepal Stock Exchange is the sole capital market of

Nepal with less than 30 broker houses, while NRB with the help of few numbers of market makers and counterparties BFIs conduct monetary market policy. The advanced financial products and assets, viz financial and commodities futures and derivatives have just been started with the establishment of three commodities exchanges, while the market for financial futures has yet to be established. All these indicate that the Nepalese financial market is still in the infant stage despite the many years of its existence while the structure is still not strong nor well diversified. The latest figure of banks and financial institutions as of mid April 2010 are shown below.

(NRs. In Million)

Banks and FIs Licensed by NRB	Number	Deposits	Loan	Total Asset
Commercial Banks	28	586,003.8	466,772.4	717,585.8
Development Banks	79	56,422.4	53,033.8	79,475.5
Finance Companies	79	84,784.2	90,274.7	126,102.4
Micro finance Development Banks	18	2,000.6	8,222.8	15,438.8
Co-operatives Licensed for Limited Banking	16*	3,904.1	3,637.4	5,834.8
NGOs Licensed for Limited Banking	45	235.2	982.5	2,382.7
Total	265	733,350.3	622,923.6	946,820.0

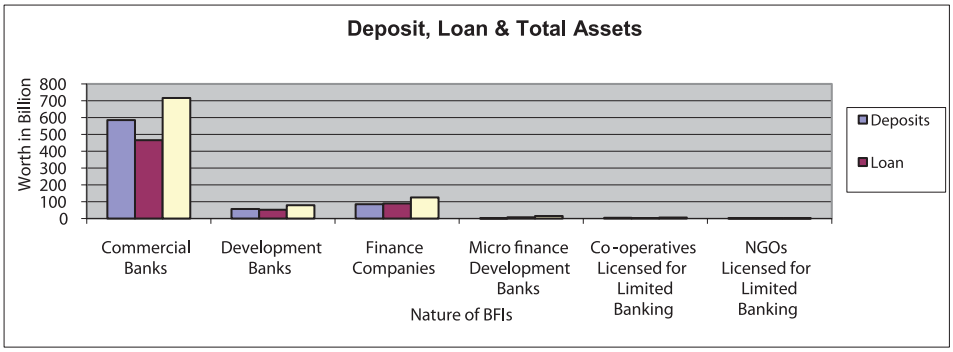
*The Co-operatives licensed for limited-banking activities is 15 but the co-operatives operating in the system from the license of Office of Co-operative Registrar is about 15,000.

The ratio of total assets/liabilities of the financial system to GDP at nominal prices increased significantly to 103.01% in Mid – July 2009 from 86.30% in Mid – July 2008. This ratio was 62.04% in Mid – July 2001.

The data of financial assets/liabilities shows that commercial banks alone hold more than 80% of the total assets and liabilities of the financial system. As of Mid – July 2009, the commercial bank group formed 82.1% of total assets/ liabilities followed by Finance Companies at 8.8%, Development Banks at 6.9%, Micro-credit Development Bank 1at .6% and others at 0.6%. In Mid – July 2008, the respective shares were 80.2, 11.4, 5.6, 1.8 and 1.0% respectively.

The composition of the total liabilities shows as usual, that deposits accounted for a dominant share of 68.22% followed by capital fund at 5.33% and borrowings at 3.58% respectively in Mid – July 2009. Likewise on the assets side, loan and

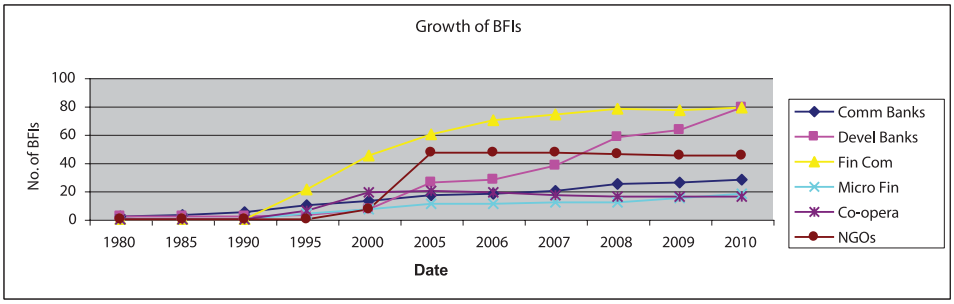
advances accounted for the largest share of 51.75%, followed by liquid funds at 14.38%, investments at 14.29% and other assets at 6.81% in the same period.



The adoption of economic liberalization policy, particularly financial sector liberalization, paved the way for the establishment of new banks and non-bank financial institutions in the economy. The growth of financial institutions are shown below.

Number of Financial Institutions during Last Three Decades

Types of FIs	Mid – July										
Year	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010
Commercial Banks	2	3	5	10	13	17	18	20	25	26	28
Development Banks	2	2	2	3	7	26	28	38	58	63	79
Finance Companies				21	45	60	70	74	78	77	79
Micro-credit Development Banks				4	7	11	11	12	12	15	18
Saving & Credit Co-operatives Limited Banking Activities)				6	19	20	19	17	16	16	16
NGOs (Financial Intermediaries)					7	47	47	47	46	45	45
Total	4	5	7	44	98	181	193	208	235	242	265

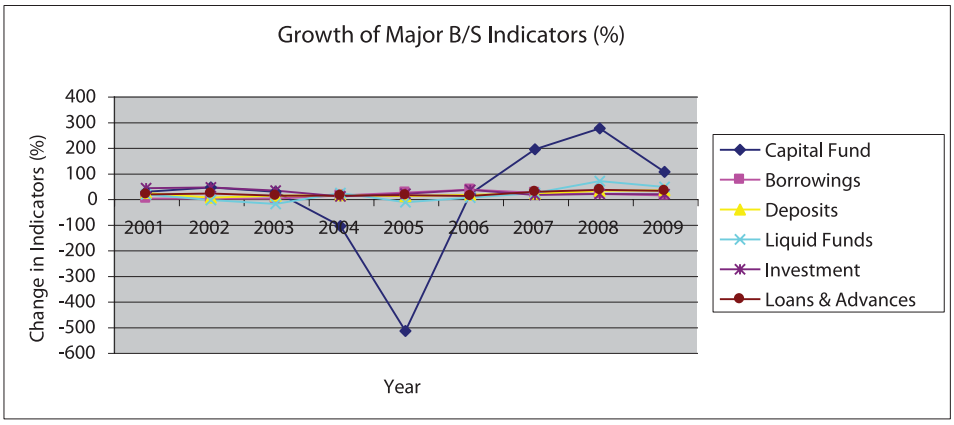


Commercial banks held a dominant share of the major balance sheet components of the financial system. Of total deposits of Rs.674584.3 million in Mid - July, 2009, the commercial banks accounted for 83.5%. Similarly, finance companies held 8.5%, development banks 7.1%, micro credit development banks 0.3% and others 0.6%. Likewise, the share of commercial banks for loans and advances stood at 77.8%, development banks 8.2%, finance companies 11.7%, micro credit development banks 1.6% and others 0.7% in Mid - July 2009. In the same year, the share of borrowings, liquid funds and investments constituted 51.8%, 74.6% and 92.6% respectively.

Capital fund, one of the components of liabilities, witnessed a remarkable growth of 104.36% and reached Rs. 52681.8 million in Mid - July 2009 from Rs.25778.0, million in mid July 2008. The borrowings and deposit increased by 12.73% and 32.55% respectively, while other liabilities decreased by 23.65% compared to Mid - July 2008. Similarly, loans and advances, the major component of assets increased by 30.70% and reached Rs. 511752.8 million in Mid - July 2009 from Rs. 391537.7 million in mid July 2008. The liquid fund and investment increased by 45.18% and 17.46% in Mid - July 2009 compared to the previous year.

Growth of Major Balance-Sheet Indicators (%)

Particulars	Mid – July								
	2001	2002	2003	2004	2005	2006	2007	2008	2009
Capital Fund	26.56	43.97	26.56	-107.36	-516.43	17.90	192.50	273.5	104.36
Borrowings	-	-	-	12.46	23.77	34.61	22.32	17.55	12.73
Deposits	21.95	3.96	11.51	13.12	9.81	15.42	19.28	30.10	32.55
Liquid Funds	16.20	-5.90	-20.59	22.08	-14.32	4.23	21.66	68.64	45.18
Investment	40.59	43.36	31.00	8.64	18.95	33.76	14.53	18.11	17.46
Loans & Advances	15.94	19.54	11.35	11.67	13.38	10.22	26.55	34.27	30.70

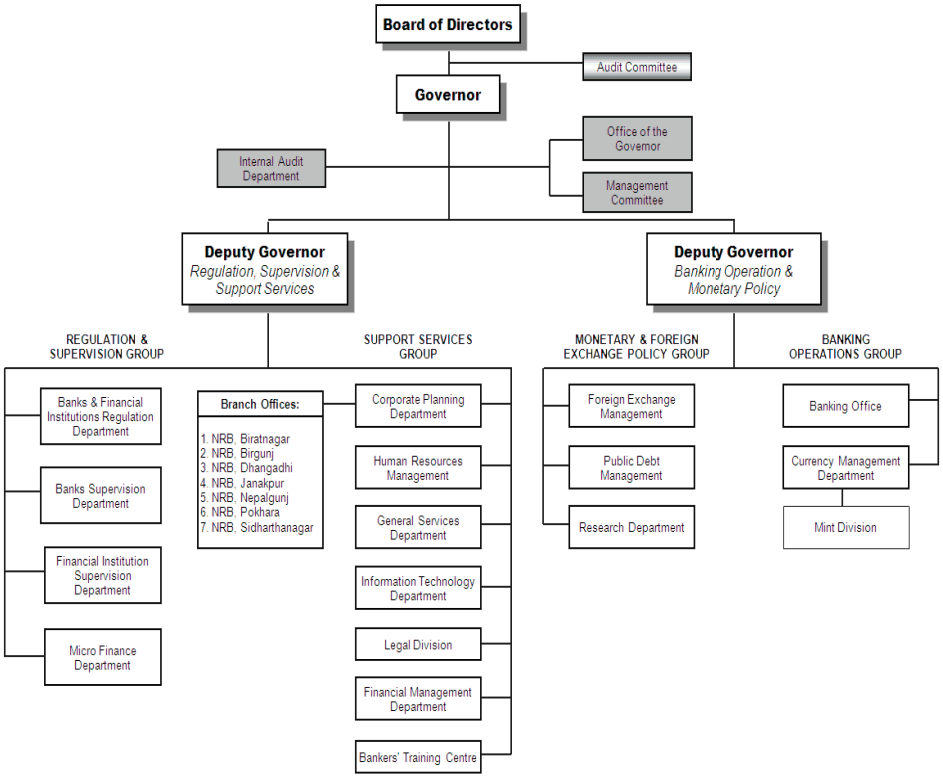


2.2.2 The Central Bank and Other Institutions Responsible for Maintaining and Stabilizin g the Financial System

The NRB is proactive in responding to 'change pressures' arising due to changes in the global economic environment. It has initiated restructuring of institutional duties and responsibilities and redefined roles to pay more attention to accomplish its vision, mission, core values, strategic goals and objectives envisaged in the Strategic Planning 2006-2010.

Nepal Rastra Bank, like other central banks, has been facing the pressure for changes in its policies, operational procedures and organizational structure. The Nepal Rastra Bank Act, 2002, has provided more autonomy in its policy and operations. The functional strategies of the NRB are (i) monetary policy and domestic debt management, (ii) foreign exchange management, (iii) financial sector management, and (iv) currency management.

Organisation Chart of Nepal Rastra Bank



NRB has adopted the following strategies for the Financial Sector Management and Stability.

1. Diversify financial sector through prudent and transparent licensing policy.
2. Broaden and deepen financial services including micro-finance services for optimal outreach.
3. Enhance competitiveness in financial sector.
4. Improve legal and regulatory framework compatible with international norms and standards.
5. Consolidate banks and financial institutions.
6. Formulate Financial Sector Master Plan for banking and financial sector.
7. Strengthen proactive supervisory mechanism compatible with international norms and standards focused on risk-based supervision.
8. Facilitate privatization of public sector banks and financial institutions.
9. Develop the payment and settlement systems as per the international norms and standards.

2.2.3 Other Responsible Bodies

Various committees have been formed and are in operation as other responsible bodies in addressing the risk in promoting financial stability including the Regulation Committee headed by the Senior Deputy Governor, the Policy, Directives Implementation Committee housed at the Bank Supervision Department chaired by the Deputy Governor which follows up on the compliance of the directives issued by NRB, high-level Committee of the Regulatory Bodies to maintain broader financial stability in a co-coordinated manner in the financial sector. The Committee includes the high-ranking officials from NRB, Insurance Board, GoN and SEBON, Special Committee for advising the Government on the economic, financial and global economic matters on the face of the recent global financial crises comprising of the National Planning Commission's Vice Chairman, NRB's Governor, Economic Advisor of MoF and other pertinent economists nominated by the Government.

2.2.4 Human Resources, Information Technology and Infrastructures.

- Human Resources
  Human resources policy guided by the philosophy of skill development as the major instrument for enhancing productivity by internalizing international HR practices, formulating effective HR policy, strengthening HR Planning and Development System, by establishing National Institute for Banking, Finance and Insurance.
- Information Technology
  NRB has been utilizing ICT optimally for efficiency and effectiveness by formulating and implementing IT policy, enhancing information technology capacity, gradually transforming work-flow towards a paperless environment.
- Infrastructures
  Improvements are being made on the Bank's physical, environmental, human, technological infrastructure.

2.3 Regulations and International Compliance.

Despite the deregulation on the major banking fundamentals viz; interest rates, exchange rates along with other regulatory forbearance; the NRB has issued the following directives to licensed banks and financial institutions for their full compliance.

a. Minimum Capital Fund

Minimum Capital Fund of 10% for commercial banks for the credit, market and operation risks and 11% for financial institutions with core capital of 6% and 5.5% respectively.

b. Classification of Loan and Loan Loss Provision

Classification of Loan and Advances including Bills purchase and discount is made into four classes on the basis of ageing of repayment viz; Performing Loans (1) Pass Loans which is not overdue or overdue by 3 months only; Non performing Loans comprising of (1) Sub-standard Loans which is overdue by 3 to 6 months; (2) Doubtful Loans which is overdue by 6 to 12 months; (3) Loss Loans which is overdue by more than a year with LLP of 1%, 25%, 50% and 100% respectively.

c. Same Group Lending, SOL and Single Obligor Limits

The fund-based and/or non-fund based facilities to the single group shall not exceed 25% of the core capital of the bank or financial institutions.

d. Accounting Policy & Format of Financial Returns

Banks and Financial Institutions must comply with the accounting policies and statutory forms, based on International Accounting Standards, Generally Accepted Accounting Principles and National Accounting Standards while reporting Balance Sheet, Profit and Loss Account, Profit and Loss Appropriation Account, change in equity statement, cash flows statement.

e. Risk Reduction in the Transactions

The liquidity risks, interest rate risk, foreign exchange risk, credit & investment risk shall be properly traced and mitigated.

f. Corporate Good Governance

The codes of conduct of Board Director, Chief Executive Officer, employees have been clearly directed to the BFIs including constitution of Audit Committee. They cannot approve loans for staffs, directors, shareholders, their family members & related firms. The promoters, directors and CEOs shall conform to the 'Fit and Proper Test' criteria laid down in NRB's directives and policies.

g. Implementation of Instructions given to BFIs during Supervision and Inspection

The licensed institutions shall implement the instructions given during supervision and inspection relating to Loan Loss Provision, Loan Portfolio Improvement Plan, Capital Adequacy, ALM, Internal Audit & Control and Progress Report about the instructions to the concerned department of NRB.

h. Investment

The BFIs shall approve the investment policy from its Board of Directors.

i. Reporting Requirements to NRB.

Banks and Financial Institutions have to submit audited annual report to

NRB within 90 days from the date of fiscal year end. They should also report weekly compulsory reserve ratio, consolidated financial statements including balance sheet, profit and loss account, sector-wise, security-wise and product-wise credit/investment statements, statements of deprived sector lending, statement of deposits, statement of foreign assets, statements of inter-bank borrowing and lending & other statements as per existing policy.

j. Sale & Transfer of Promoter Share

The promoter shares, which comprises of less than 2% can be transferred without prior approval of NRB.

k. Consortium Financing

The licensed institutions can for consortium team to finance high cost risky projects.

l. Credit Information & Blacklist

Banks and Financial Institutions shall abide by the prevailing directives of NRB regarding furnishing and obtaining credit information to/from Credit Information Center (CIC) regarding all the credit clients including existing as well as new ones of borrower of more than 2.5 million rupees and ask credit information for lending more than 2.5 million.

m. Compulsory Reserve Ratio and Statutory Liquidity Ratio

Banks and Financial Institutions are required to maintain 5.5% of total domestic deposit liability as Compulsory Reserve Ratio (CRR) with NRB. They shall hold treasury securities and others for Statutory Liquidity Ratio (SLR) as specified by NRB.

n. Opening of Branch/Office

Banks and Financial Institutions meeting minimum paid up capital, capital adequacy ratio and less than 5% NPAs and opening branches at remote area as specified by NRB can open new branch. At least BBB rated foreign bank can establish its branch in Nepal since January 1, 2010 as per the agreed while obtaining the 147th membership of WTO. Similarly, Nepalese banks can also open their branches abroad.

o. Interest Rate

Banks and Financial Institutions can independently determine and implement interest rates on loans and deposits, which shall be on floating basis.

p. Collection of Financial Resources

There is no ceiling for the mobilization of financial resources for the A class commercial banks but development bank can mobilize up to 20 times and finance company can mobilize up to 15 times of the core capital in the form of deposits, loans, and debentures.

q. Deprived Sector Lending

Banks and Financial Institutions shall directly or indirectly lend 3% (A class), 2.5% (B class) and 2% (C class) of total loans and advances to poor and marginalized people.

r. Mergers, Acquisition and Graduation

Banks and Financial Institutions can merge with or acquire other financial institutions or graduated.

s. Know Your Customer

Banks and Financial Institutions must abide by the prevailing regulations concerning Know Your Customer (KYC), Anti-money laundering, and crimes, probable financing to terrorism and other similar nature transactions.

t. Regulation related to Subsidiary Company

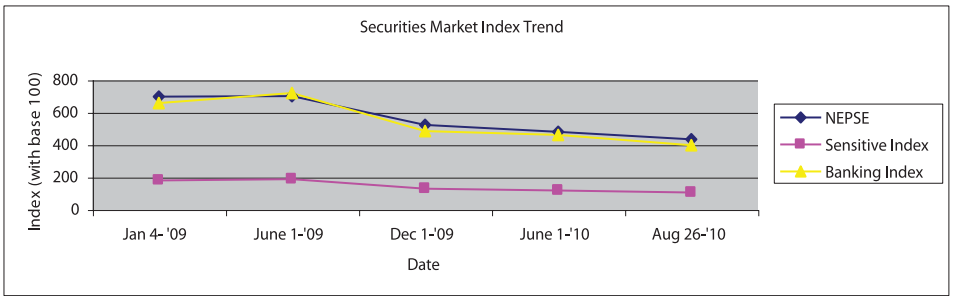
"A", "B" & "C" class banks and financial institutions can establish a "D"-class Subsidiary Company aimed at channeling financing to the deprived sector. They can also establish a subsidiary company for merchant banking activities licensed by Securities Board of Nepal (SEBON).

3. Risks

3.1 Market Risk

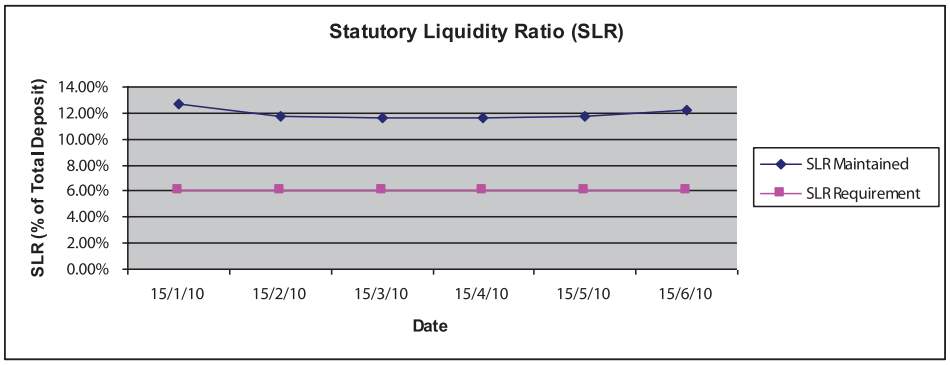
The market risk measured based on the performance indicators of the secondary market, NEPSE where equity shares of banking institutions licensed by NRB has dominance, has shown declining trends as reflected by the indices of the last one and a half years. The daily price volatility of a company's stock cannot be more than 10%; otherwise the circuit breaker is used to halt the transaction.

The market risks of commercial banks requiring regulatory capital adequacy is less than 1% of the total capital cushion for the RWE.



3.2 Liquidity Risk

The banks and financial institutions have maintained sufficient liquidity as measured by the SLR. The broader regulatory requirement for the maintenance of liquidity has been met. The statutory requirement of 5.5% CRR, 15% SLR including CRR are the measures to manage liquidity risk. Similarly, the loans and advances of the licensed banks and financial institutions shall not exceed 80% of its core capital and deposit liability.

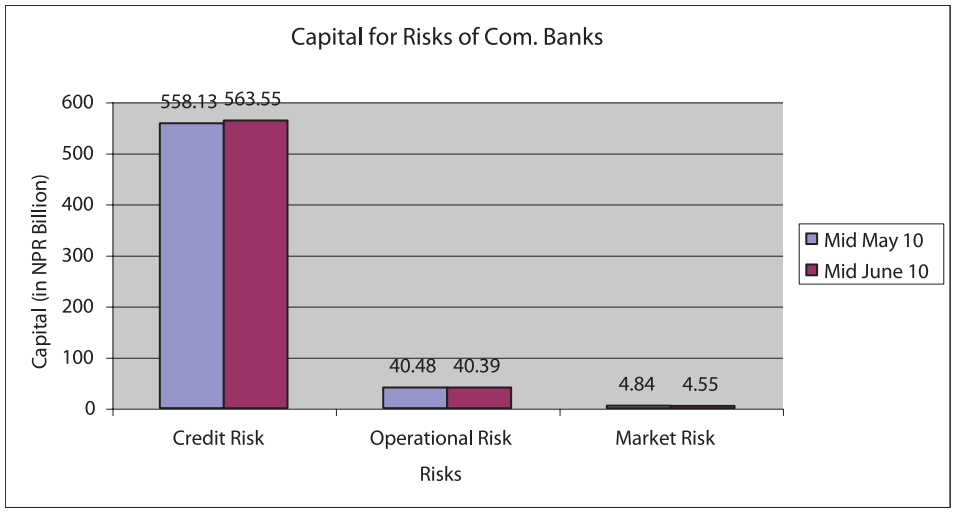


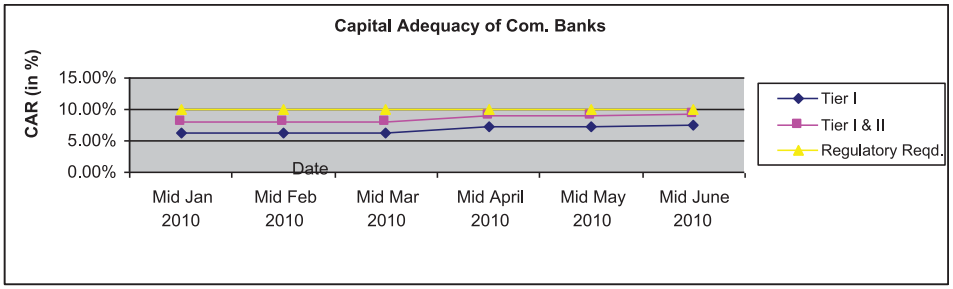
3.3 Credit Risk

The major risk of commercial banks is credit for which they have to maintain higher level of capital, which is 92.61% of the total capital required to absorb credit risks. Credit to core capital & deposit ratio is 80% and stringent measures of provisioning up to 200% has been applied as a measure to manage credit risk. The NPLs as a percentage of total loan is 3.13%.

3.4 Operational Risk

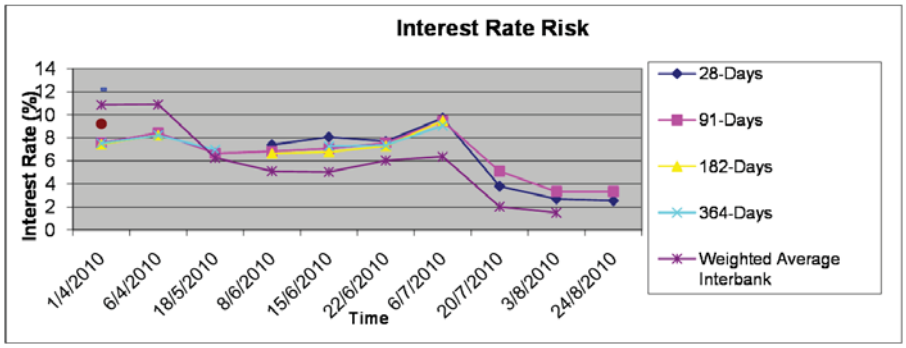
Operational risk of the commercial banks is the second largest risk for which 6.64% of the capital shall be apportioned out of the total capital required for RWE. BFIs shall prepare and implement the operational risk manual for the management of operational risk.





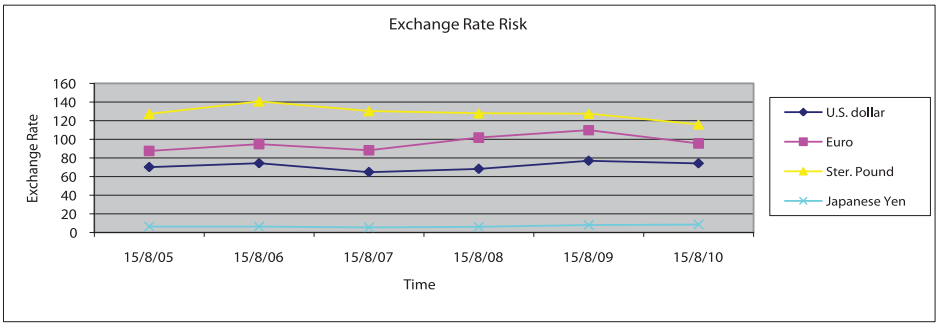
3.5 Interest Rate Risk

Interest rates have been fluctuating in the last four months. The inter-bank interest rate has ranged from 1.48% to 10.92%. The annual interest rate has fluctuated by less than 2%. The interest rate seems sensitive to the liquidity position of the banking system. Open market operations, Repo, Reverse Repo, etc are used to manage liquidity and interest rate related volatility.



3.6 Exchange Rate Risk

The exchange rate risk is not significant because of the pegged exchange rate regime of Nepalese currency vis-à-vis Indian currency. The devaluation of the Nepalese currency has been experienced during the last decade.



3.6 Crisis Resolution Mechanisms

Nepal has yet to finalise its specific crisis resolution system and mechanism. However, the Problem Resolution Framework and Contingency Plan has been considered as a priority agenda of NRB, which would be a milestone for promoting financial stability. Historically, the NRB's function as the lender of the last resort (LLOR), in the events of crisis and emergency, provides loans to the distressed banks and financial institutions for liquidity purpose. In addition to this, there is an early problem bank resolution mechanism to mitigate the possibility of systemic bank failure. It includes NRB's prompt corrective action (PCA) framework which triggers when banks experience capital shortfalls as indicated by the CAMELS composite ratings. Few banks were triggered by the PCA in the past which is also based on the level of the capital deficit.

In addition to this, there is also the Credit Guarantee and Deposit Insurance Corporation (CGDIC), now focusing on the deposit insurance of less than NRs 200,000 deposited in the BFIs as saving or fixed deposits. The Monetary Policy of NRB and Fiscal Policy of the Government of Nepal have given more priority for the deposit insurance in view of the recent global financial crisis. Two state owned commercial banks that were experiencing massive problems of high NPAs and negative net worth have shown significant improvement in their financial health since NRB control.

4. Supporting Tools for Monitoring Financial Stability

The aim of promoting financial stability can be more effective if the regulator and supervisor has macro and micro surveillance and other analytical tools at their disposal. Nepal Rastra Bank (NRB), as a regulator and supervisor, has developed various surveillance and analytical tools to ensure the safety and soundness of the banks and financial institutions under its supervision. Some of the tools that NRB has been using for the monitoring of financial stability are:

4.1 Financial Stability Index

A separate financial stability index has not been developed in Nepal. However, the components of financial stability index (FSI) viz, measures of capital adequacy, asset quality, earnings and profitability, liquidity, and sensitivity to market risk, as well as indicators of market liquidity, corporate and household financial health, and real estate prices, which are also the components of Financial Soundness Index, are explained in point 4.2 and 4.3.

4.2 Major Indicators

Nepal Rastra Bank publishes different statistical reports focusing on banking, monetary, fiscal, external sector and other information on a periodic basis. The leading indicators of the Nepalese economy and banking system to assess the health and financial stability situation are presented below

1. Bank Capital, Tier 1 and Tier 2, (% of Total Assets)—ratio capital equity including reserves, profits and loss to total risk weighted assets is 9.59% (Mid July 2010).
2. Growth of Total Assets (%)—quarterly percentage growth from mid January to mid April 2010 is 1.52%.
3. Share of 3 Largest Banks (% of total asset) is 25.50% on Mid April 2010.
4. Net Operating Profits (% of period-average Assets) is 2.79% on Mid April 2010

5. Loan-Loss Provisions (% of Non-Performing Loan)—ratio of loan loss provision to non-performing loans is 87.85% on mid April 2010.
6. Non-Performing Loans (% of total loan)—ratio of non-performing loans is 3.13% on mid April 2010.
7. Real Estate Loans (% of Total Loans)—ratio of real estate loans to total loans is 13.2% on mid July 2010.
8. Total Loans (% of Total Deposits)—ratio of total loans to total deposits (i.e., demand deposits, savings deposits and time deposits) is 81.31% on mid July 2010.
9. Growth of Domestic Credit (%)—declined by 1.2% in the first month of 2010/11 compared to a decline of 1.7% in the same period of the previous year.
10. Credit to Private Sector -Credit to the private sector declined by 0.8%in the review period, which had increased by 0.3% in corresponding period of the previous year.
11. Capital Adequacy Ratio (%)—ratio of total capital to risk weighted assets is 9.59% on mid July 2010.
12. Liquidity Ratio (%): The ratio of commercial banks' liquid assets to total assets: (a) domestic liquid asset ratio and (b) foreign liquid asset ratio is 30.35% on mid July 2010.
13. Non-Performing Loans (% of Average Assets): Simple average of assets over the period is 2.06% on mid April 2010.
14. The secondary market NEPSE index declined by 31% to 420.30 points in mid-October 2010, which was 609.55 in the same period last year. The y-o-y stock market capitalization decreased by 17.2% to Rs. 356 billion in mid October 2010. The ratio of market capitalization to GDP stood at 26.9% in the review period which was 36.3% in the same period last year. Of the total market capitalization, the share of bank and financial institutions was the largest at 72.2% followed by manufacturing and processing companies 2.4%, hotels 1.5%, business entities 0.4%, hydropower 4.6% and other sectors 19.0%.

4.3 Stress Testing and Financial Soundness Index

Stress testing has increasingly emerged as an accepted mode for assessing the vulnerability of the financial system to exceptional but plausible stress events. The vulnerabilities and resilience of commercial banks have been tested under various scenarios impacting their credit, interest rate and liquidity risks by calibrating the stress factors. Supervisory stress tests are conducted with the main objective of assessing the resilience of banks to potential risks and vulnerabilities, both at the level of individual banks and the banking system as

a whole. Such stress testing facilitates strengthening of the information set and consequent refinement of the prudential supervisory process so that more in-depth analyses can be conducted on individual banks identified as outliers. This could assist in introduction of appropriate early preventive measures. The stress tests could also facilitate macro-prudential surveillance by identifying potential vulnerabilities and overall risk exposures in the banking system that might lead to systemic problems. Ideally, stress scenarios are required to be linked to a macroeconomic framework.

The quantitative response models generally employ econometric techniques to estimate the relationship between the macroeconomic variables to study the impact of stress conditions. In Nepal, conducting stress testing is a difficult exercise due to the lack of adequate and relevant past time-series data. For example, the data on asset prices are inadequate – no reliable system level data is available for commercial real estate prices – which would be the primary input to assess the impact of asset price inflation in the economy. In formulating the quantum of shocks, judicious criteria on selected indicators based on the experience of the Nepalese financial system are applied. Based on the supervisory data, individual banks' positions are examined by applying shocks in respect of a single key variable, which is then related to an important financial soundness indicator – typically the regulatory capital adequacy ratio. The same analysis is also carried out for the system as a whole by aggregating the impact across individual banks.

Nepal has recently begun the stress testing on the most sensitive areas of commercial banking business viz, credit risk, market risk and liquidity risk. Resilience of Banking System of Nepal towards Key Stress Tests (as of Mid April 2010) Credit Shock C-3 Deterioration of Loans to the Real Estate Sector & Housing Finance (25%) directly downgraded to doubtful category of NPLs, Market Shock Eq-1 assumes a 50%fall in the equity prices. and Liquidity Shock L-1 assumes 2 %, 5 %, 10%, 10% and 10% withdrawal of deposits for five consecutive days respectively has shown that all 3 public sector banks and one private sector bank's aggregate vulnerability towards these shocks is high because it exceeds 5, 15 banks' aggregate vulnerability towards these shocks is moderate which ranges between 3 to 5 and rest of the banks' aggregate vulnerability towards these shocks is less. Level of vulnerability of liquidity shock at Liquidity Shock L-1 assuming 2 %, 5 %, 10 %, 10% and 10% withdrawal of deposits for five consecutive days respectively revealed that 16 banks and overall banking industry has score 3 because after shock Capital Adequacy Ratio (CAR) is negative. Credit shocks and equity shocks are high for the public sector banks score at 3 because after shock Capital Adequacy Ratio is negative. By considering

the credit and liquidity as the shock events, NRB will be conducting stress tests by the end of December 2010. (Refer to the attachment in Appendix).

Nepal has yet to develop the Financial Soundness Index to measure the financial soundness of the financial system. However, the financial soundness of the system is measured from the following ratios - Non-performing loans / Total loans, Regulatory capital/Risk weighted assets, Liquidity ratio, which are at comfortable levels of 3.13%, 9.59% and 20% respectively.

4.4 Early Warning Indicators

Financial analysis and review of the offsite division, work as an early warning system. An early warning signal helps to identify commercial banks which display a high probability of financial constraints. Off-site analysis is not intended to replace the on-site inspection but only to supplement inspection procedures. Offsite supervision reports are useful to identify the areas of review in the pre-onsite inspection planning process. Risk focused inspection (special inspection) and corporate level inspection are used to trace out the EWS.

Offsite supervision reports help to bridge the gap between onsite inspections and provide a formalized system to resolve deficiencies. Top priority issues can be identified that is most likely to compromise the banking standards or cause problem on sound banking practices. Early detection will hopefully benefit the supervisory works by reducing the probability of any bank becoming a “problem bank”, thereby reducing the amount of time necessary to monitor these banks.

An early warning system is a system, which enables the Offsite Supervision Division to identify commercial banks, which reflect a high probability of financial difficulty so that policies and corrective action can be designed and implemented as soon as possible. Early warning system should also be a key component of inspection planning so that maximum benefit is achieved from the limited time spent conducting an on-site review. Also, comparing the trend of ratios will give some indication if conditions are improving or deteriorating.

The essence of the early warning system lies with the identification/indication of weakness, which may lead to problems in the future. Thus, thr degree of offsite supervisory concern in one or more of the component areas of the banks with code “R” is higher. These banks should be monitored with respect to each component of CAELS rating of 4 or 5 individually. All the banks should be identified with its component problems rather than to evaluate on the composite rating of 3. Normally, a bank does not turn out to be problem banks without

showing phase of degradation of ratios. Thus continuous offsite surveillance is to take preventive measures before a bank is assigned a code "P".

4.5 Macro Prudential Measures

The rapid credit growth in recent years, fueled partly by remittance inflows, has created asset price bubbles, particularly in the real estate and housing markets. To strengthen the health of the financial sector and financial stability, NRB has taken the following macro prudential regulatory measures to safeguard financial sector stability.

1. **Licensing policy.** NRB has imposed a moratorium in December 2009 on new bank licenses while the policy is being reviewed. However, to promote the financial services in rural areas, the moratorium has been lifted for micro-finance institutions (class D) and eased for development banks (class B) as well.
2. **Single borrower limits.** Single borrowing limits have been lowered to 25% of capital by July 2010, with the exception of some infrastructure projects such as hydropower, cable cars, and the infrastructure projects.
3. **Real estate limits.** BFIs are required to lower exposure to real estate loans (and housing) to 25 (40) % of total loans by end-2009/10. Both limits will be further lowered by 10 percentage points by the end of 2010/11 and by an additional 5 percentage points by the end of 2011/12. Loans above the limit will be penalized by provisioning requirements on the basis of a risk weight of 150%.
4. **Loan-to-value limits**. BFIs' loans cannot exceed 60% of fair market value of collateral or project.
5. **Liquidity Ratio.** 20% liquidity ratio is mandatory for BFIs.
6. **Sectoral Credit Limit.** Maximum 40% or less if the sectoral credit ceiling has been fixed by any other directives.
7. **Statutory Liquidity Ratio (SLR) and CRR.** SLR of 15%, 11% and 10% by A, B and C class BFIs respectively including 5.5% CRR within it.
8. **Credit-to-deposit ratio limits**. BFIs' credit-to-deposit ratios should not exceed 95% by the end of 2009/10, 85% by the end of 2010/11, and 80% by the end of 2011/12.
9. **Risk management.** NRB has issued risk management guidelines to the commercial banks.

Some of these new prudential measures will be challenging for the BFIs to meet. In this context, NRB is committed to enforcing existing regulations and developing bank-by-bank time bound actions plans, if necessary.

In addition to the above, minimum capital fund, loan loss provision, compulsory and statutory liquidity ratio related regulations are also in force.

4.6 Micro Prudential Tools and Indicators (CAMELS, CAELS)

Some micro prudential tools and indicators are CAMELS and CAELS for the measurement of overall financial health of a banking institution.

4.6.1 CAELS Rating

Quarterly financial review is based on the CAELS Rating system for early detection of weaknesses in a bank's condition. The data required for CAELS Rating is compiled from the periodical returns submitted by banks. Data and financial information received from banks is converted to pertinent ratios, which are then compared to Peer Group Average (PGA) and banks are ranked on the basis of the statistical CAELS analysis. Using these comparisons and ranking, each bank are assigned an offsite code.

The clarity and transparency of the ratings criteria will be critical to ensuring that ratings are assigned in a disciplined and reliable manner. The off-site supervisor gives as reliable as possible CAELS rating with major structural elements of independence of the rating process, internal review of ratings and transparency i.e. document the rationale for each ratings category.

For this purpose NRB has introduced two rating system:

1. Core Indicator CAELS Offsite Rating (CICOR) System
   Core indicator ratios are identified under each of five components i.e. Capital, Asset Quality, Earning, Liquidity and Sensitivity to risk. The ratios of total capital fund to risk-weighted assets, NPL to total credit, Net profit to average assets, Local credit to local deposit and Sensitivity of risk are computed. In considering capital, asset quality, earnings, liquidity and market sensitivity, ranking of the banks are rated on a 1-5 scale, with 1 indicating soundness in most respects with minor deficiencies and 5 indicating extremely poor condition; without prompt action, failure is likely. The range of composite CAELS rating of 26 banks is 1.10 (sound in most respects with minor deficiencies) to 2.95 (moderately severe to unsatisfactory weaknesses which require more than normal supervision).

2. Statistical CAELS Offsite Rating (SCOR) System
   The CICOR system rating is based on only one core indicator ratio under each of capital adequacy, asset quality, earning, and liquidity section.

However, there may be other weaknesses, which may not be identified only by rating core ratios.

Other factors to consider include the trend in ratios and conditions of banks. For example, if a bank has been recording very low ROA in the past and registering high ROA, the analyst should check whether it can sustain better performance. Such situations lead to the analysis of the trend.

Thus to gain an overview of a bank's financial condition in broader analytical perspective and change over the period of the operation, various ratios and trends of each commercial bank should be calculated and properly interpreted. In order to make ratio analysis easier, its interpretation less complex and to arrive at a statistically driven conclusion of the financial analysis, the Statistical CAELS Offsite Rating (SCOR) was introduced, based on ratios and trend of the ratios.

4.6.2 CAMELS Rating

The management rating should reflect the capability of the Board of Directors and management in their respective roles, to identify, measure, monitor, and control the risks of an institution's activities. The CAMELS rating appraise the competence, involvement and integrity of the management in the administration of the bank/non-bank, especially in the formulation of policies and procedures and the implementation of systems and controls; and in ensuring the bank/non-bank's compliance with applicable laws and regulations.

The Management and the Board of Directors would be rated "1" if they demonstrate strong performance with respect to competence, involvement and integrity; and rating of "5" indicates critically deficient management and Board performance. Nepalese banks have management rating of "2" indicating satisfactory management and Board performance. Minor weaknesses may be apparent but they are not material to the safety and soundness of the banks/ non-banks and are being addressed. Significant risks and problems have been identified, measured, monitored and controlled.

4.7 Reports

- NRB publishes inflation data, banking and financial statistics and their quarterly financial highlights, economic reports and indicators on the quarterly basis.

- NRB issues a quarterly report measuring the performance of banks and financial institutions over a period of a quarter while the annual report dissects the performance of a year. The quarterly report is also of two types-Individual and Consolidated. The individual report is primarily based on the CICOR and SCOR rating and is concerned with one specific commercial bank while the consolidated is summation of all commercial banks accounting for the overall performance of the industry rather the specific commercial bank.
- Peer groups: Peer group is segregated to enable comparability between the banks of a similar category on the basis of the size of business. The peer group is selected on the basis of sum of loan and advances, core capital, investment and deposit for each commercial bank. Commercial banks are regrouped every year by calculation of the statistical business size on the basis of audited annual financial statements of the banks.
- Annual returns: Commercial banks are required to have their accounts audited within 5 months from the end of financial year and auditors of the commercial banks are also required to submit audit reports and other reports as specified by NRB.

5. Assessing Financial System Stability in Nepal

Financial stability is broadly concerned with an economy's saving-investment nexus. Deviations from the optimal saving-investment plan generate a welfare cost. These deviations may arise from inefficiencies in the functioning of the financial system or from instabilities in this system in the face of shocks despite significant strides taken to maintain and promote financial stability. Some of the aspects of financial stability in the banking system are as follows:

5.1 Sufficiency of Tools, Indicators, Analyses and Reports to Support or to Promote Financial Stability

The effectiveness of tools, indicators, analyses, and reports was discussed in Section 4. These tools shall be further refined and strengthened to improve financial health, predictability and confidence. The fresh efforts made by Government of Nepal and Nepal Rastra Bank against the backdrop of the global financial crises are laudable. However, Nepal needs to speed up its efforts to promote financial stability by identifying the scope of improvement and removing the weaknesses with respect to financial stability.

5.2 Ways of Improvement

The Nepalese banking business has been developing at a rapid speed since 1990s. It is still on a growing trend. The banking industry did not encounter any severe setbacks in the past except for some challenges in liquidity and asset management due to high levels of non-performing loans, especially in the state owned banks, which have been under reform process since 2003. The adaptation of latest tools for measuring financial health of banking business started late. The technical tools of assessing the overall banking stability and soundness viz, CAMELS rating, stress testing, ALM and early warning signals were used reactively due to changes in the global financial landscape and as a consequence of these events in the Nepalese economy. The financial market and insurance businesses developed only after the 1990s with traditional products and limited purview of operations. Some of the ways of maintaining financial stability in Nepal are:

a. Integrated Financial Sector Master Plan shall be drafted with due participation and consultation with stakeholders, government and regulators.
b. The risk focused supervision on the performance of banks and financial institutions shall be further strengthened.
c. The excess regulatory forbearance in the system shall be logically reviewed in the light of global scenario of financial challenges.
d. The proactive approach on the maintenance of stability of the financial system shall be the habitual and professional duty of regulators and supervisors.
e. The financial system is not isolated and independent of the whole political, economic, social, technological and ecological components; rather it is the product of such a system. Therefore, stability, predictability and policy consistency shall be inherent to facilitate financial stability.

5.3 Advantages, Disadvantages and Problems

The advantages, disadvantages and problems associated with the assessment of financial stability in Nepal are explained in the following:

1. In response to financial crises in the 1980s and 1990s, the national and international institutions started to monitor the soundness of the financial system more intensively. wide range of instruments was used to assess financial system stability. These include in particular analysis of quantitative indicators of financial system soundness and stability, including stress testing. These indicators strive to cover the issue of financial stability as a systemic phenomenon and therefore are concerned not only with financial institutions and markets, but also the real and government sectors as the main debtors

of financial institutions, as well as the financial infrastructure. Nepal has recently begun the stress testing, especially after the financial challenges of 2008.

2. Unlike price stability, financial stability has neither an established definition nor an aggregate indicator that the central bank can use as a measure of financial instability. Whereas at least some consensus has been reached on the definition of financial stability, the construction of an aggregate financial stability indicator is still in the research and experimental phase. As most of the indicators relate primarily to banks (deposit takers) as key institutions in the financial system, the quantitative assessment of financial stability concentrates on indicators of the soundness of the banking sector.
3. The indicators should be comparable at the international level.
4. The core financial stability indicators (FSIs) relate to six basic areas relevant from the point of view of banking business and are compatible with the CAMELS methodology for the assessment of the soundness of individual financial institutions (Capital adequacy, Asset quality, Management soundness, Earnings, Liquidity, Sensitivity to market risk), which Nepal has heavily relied on.
5. Capital adequacy indicators measure the banking sector's ability to absorb sudden losses and are thus closest to the "resilience to shocks" concept, whereas the asset quality indicators are directly associated with potential risks to banks' solvency. The profitability indicators measure the ability to absorb losses without any impact on capital, while the liquidity indicators measure banks' resilience to cash flow shocks. Foreign currency exposure is an indicator measuring a bank's risk exposure with regard to movements in asset prices on financial markets. The management quality indicators were ultimately not included in the FSIs owing to difficulties connected with quantifying indicators that are qualitative in nature.
6. A big advantage of stress tests is that they provide a link between individual FSIs, which are relatively static in nature, taking into account the potential losses that the financial sector would suffer in the event of a shock The results of regular stress testing, especially of the banking sector, may thus also serve as an additional financial soundness indicator. Another area where stress testing offers substantial value added compared to the monitoring of simple indicators is the analysis of the systemic risk associated with inter-bank contagion.
7. An aggregate financial stability indicator may serve as a first step towards better operationalizing the concept of financial stability and building a more appropriate framework for assessing financial stability.
8. The unavailability of data, lack of expertise for the calculations of different methods of assessing the financial stability is to be reduced.

6. Key Findings and Policy Implications

Against the above analysis, there is interrelationship and interdependence between the banking, monetary, fiscal, insurance and securities market related policies adopted by an economy which have direct impacts for the maintenance and promotion of financial stability. The major findings and policy implications of the study are as follows:

1. Important legislative and regulatory reforms have been implemented, banking and insurance supervision and central banking operations have been strengthened, and market infrastructure has improved. However, slow progress has been achieved in the restructuring and reforms of the state-owned commercial banks. The strengthening of the provident fund and investment trust has not been addressed.
2. The financial system is resilient, despite a challenging macroeconomic environment. Even in the face of domestic conflict, poorer economic growth, high fiscal deficits, widening current account deficit, and accelerating inflation, the banking system's financial performance has improved.
3. Although near-term risks to banking system stability appear manageable, challenges nonetheless remain. Stress tests suggest that banks are relatively well positioned to deal with asset quality concerns, but credit quality and systemic risk could weaken it. There could be greater vulnerabilities to interest rate and liquidity shocks. The risks faced by non-bank financial institutions, such as finance companies and cooperatives are still high.
4. While progress has been made, a framework for risk-focused supervision is evolving. This is an important condition for successful implementation of Basel II implemented by Nepal Rastra Bank (NRB). Bank Boards and Management also have to be encouraged to play a more effective role in the risk management process. Implementing consolidated supervision, including improved information sharing among regulators using high-level committee of regulatory institutions, viz; NRB, SEBON, Insurance Board and Government body is another key mechanism for the maintenance and promotion of financial stability.
5. Few commercial banks, including fully and partly government owned banks, continue to face structural weaknesses, poor governance and management problems. While there has been some improvement following the government's restructuring efforts; high cost-income ratios, driven by staff and pension costs, continue to affect their performance. Addressing the capital deficiency in state-owned banks has been a key concern.
6. There are several factors, which may have a bearing on financial stability, including inflationary pressures and expectations, management of government borrowing programme, and capital flows. The profit margins of banks may

face pressure on the investment portfolio, increased provisioning requirement and calculation of interest on savings bank deposits on the average basis since September 1, 2010.

7. The Asset Liability Management (ALM) does not indicate any significant mismatches, despite some liquidity mismatch in the last quarter of the FY 2009/10. The credit growth in recent times, however, has been in sectors such as real estate, which requires longer term funding. The resultant ALM mismatches would require careful monitoring on an ongoing basis.
8. NRB has the standard set of tools to manage liquidity, including compulsory reserve requirements, standing facilities, and open-market operations. However, there was a liquidity pressure that existed for few months during the recent past fiscal year of 2009/10 which is still a matter of concern in the banking system as reflected by the existence of inter-bank interest rate as low as 1.5% and as high as 12% within a single quarter. This experience suggests that there is scope for the NRB to use its existing instruments more effectively.
9. The establishment of the Nepal Clearing House Limited with the equity participation of bankers, including NRB, for automated clearing of bills of exchange (cheques) has added efficiency in the payment system by accelerating the clearing process.
10. A number of positive developments have also taken place in the capital markets, but there are still considerable untapped potential benefits. The investor base remains narrow. The securities market suffers from both a limited issuer and investor base.
11. The economic environment in which banks are operating is challenging, with uncertainty created and fueled by the global financial crisis and the subsequent global recession coupled with internal political uncertainty. The growth in real activity in Nepal has decelerated with inflation at 8.9% and economic growth rate of less than 4%. The government-borrowing requirement is high. This macroeconomic environment could be expected to put some strain on the financials of the banking system.
12. The downturn in the real sector could adversely impact the loan portfolio of the banks, both in terms of growth and asset quality. The impact has started to appear from the second quarter of this financial year. Banks' cost of funding is likely to increase, given the high inflation and the expected future path of the interest rate cycle. This could put pressure on banks' net interest margin (NIM). The provisioning requirements may increase on account of more stringent regulatory norms coupled with the likely increase in NPAs and higher rises in mark-to-market losses due to likely increase in sovereign yields because of increased government borrowings. This could put pressure on banks' bottom-line and overall financial indicators.

13. The various scenarios used to stress test and the credit risk exposure of banks reveal a reasonably comfortable position and resilience of banks to withstand unexpected deterioration in credit quality. The steady and secular improvement in asset quality spread across banks and the balance sheet cleaning done by banks over the last few years, prior to the onset of the recent global crisis, explain the muted impact of the stress scenarios. However, the global economic slowdown has increased the downside risks, having the potential to impair the asset quality of banks in the near future.
14. The liquidity stress test results show that some banks face liquidity constraints under the stress scenarios. Though the scenarios developed have stringent assumptions, nevertheless, the results of the stress test suggest that banks need to continuously monitor their contingency liquidity plans while also strengthening systems for management of liquidity risk.
15. The stress test findings indicate that the likely impact of an unexpected rise in credit defaults on banks' capital position is not very significant. A secular improvement in the asset quality of the banks in recent years largely explains such results. A level of comfort from the results of the stress tests could be derived. Notwithstanding, there is a need to monitor the situation closely to identify any incipient signs of stress building up in the system.

7. Conclusions

The global financial crisis of 2008 re-emphasized the importance of central banks in crisis forecasting, preparedness and resolution and the apparent absence of clear, wider mandate and capacity of maintaining stability. Although NRB, the supervisor and regulator of the banking industry of Nepal, does not have a clear policy statement of financial stability in its Act, has continued its best efforts to maintain financial and monetary stability. The conclusions of the research are:

1. Macroprudential analysis and stress testing have been found very useful in understanding vulnerabilities, but availability of data and expertise need to be strengthened.
2. Further development of liquid and efficient financial markets, and strengthening access to finance (both domestic and external) call for appropriate sequencing, prioritisation, and coordination of policy measures to:
   - 2.1 Prioritise measures to develop markets and strengthen access,
   - 2.2 Coordinate market development measures with associated risk mitigation measures.

3. The assessment of financial stability remains a crucial and indispensable task for every central bank. Some of the concrete efforts to be made by banking, financial market and insurance business regulators to maintain financial stability in Nepal are:
   3.1 Ensuring an integral safe and efficient payment system through effective use of technology and planning,
   3.2 Avoiding the collapse or disruption of the banking system which may be caused by asset bubbles or a contagion of inter bank or financial institution failure,
   3.3 Ensuring the stable functioning of related financial intermediaries such as insurance companies to avoid the negative effects of a financial contagion threatening the stability of the financial system,
   3.4 Minimizing the collapse of asset prices within illiquid markets through timely and effective liquidity measures as the case may be relevant.
4. To assess the stability of the financial system and its most important part, i.e. the banking sector, it is appropriate to use a number of quantitative indicators and combine various approaches, including the calculation of financial soundness indicators, stress testing and some aggregate view of the development of the financial or banking sector based on a simple aggregate indicator.

8. Recommendations

On the basis of this study and need for advanced mechanisms and efforts for the maintenance of financial stability in Nepal, the following recommendations are proposed:

1. Consolidation and modernization of banking, strengthening the supervisory capability and credit risk management should be the key priorities.
2. Financial stability indicators compiled at the level of international institutions such as the IMF and other bodies are better references for facilitating the assessment of financial soundness and stability.
3. Steps are needed to create a level regulatory playing field, so as to allow private institutions to develop, to improve the efficiency of the state-owned banks through strong governance and management structures, and to better use the development banks and micro-finance institutions to address under-banked segments of the economy.
5. The Crisis Resolution Framework should be effectively formulated and activated for the resolution of crisis.

6. The financial stability indices covering the stock market index, bond market index, money market, insurance, etc should be constructed to manage the stability in the financial system more reactively and proactively.
7. Separate Financial System Stability Department in the NRB should be established to give more attention to addressing risk on promoting financial stability in Nepal.
8. The household and corporate/firm liquidity should be surveyed at definite time intervals to gauge liquidity outside the banking system.
9. The capacity of the Credit and Deposit Insurance Corporation should be strengthened. Similarly, the deposit insurance programme which began recently should be extended and intensified gradually in the days to come.
10. There should be a Memorandum of Understanding (MoU) and Standing Working Committee of the middle level officers of the regulators and supervisors of the financial system namely, Nepal Rastra Bank, Ministry of Finance, Government of Nepal, Insurance Board, Securities Board of Nepal and Office of Company Registrar, Government of Nepal to create uniformity, certainty and stability in the regulatory and supervisory system.
11. Financial Literacy Campaign should be launched throughout the nation to raise public awareness on the importance financial and banking stability with participation from regulators and other stakeholders.
12. The insurance business has a growing stake in the economy and resource handling/mobilisation by this industry is growing rapidly. Therefore, prudential regulations, supervision and adequate mechanisms to ensure the secured allocation/deployment of the resources should be in place.

Abbreviations

ALM	Asset Liability Management
BFIs	NRB Licensed Banks and Financial Institutions
CDS	Central Depository System
DRT	Debt Recovery Tribunal
FY	Fiscal or Financial Year
GDP	Gross Domestic Product
GoN	Government of Nepal
IB	Insurance Board
ICT	Information Communication Technology
IMF	International Monetary Fund
LLP	Loan Loss Provision
NEPSE	Nepal Stock Exchange Ltd.
NIM	Net Interest Margin
NPA	Non-performing Assets
NPL	Non-performing Loan
NRB	Nepal Rastra Bank, Central Bank of Nepal
SAARC	South Asian Association for Regional Cooperation
SEBON	Securities Board of Nepal
SOL	Single Obligor Limit
WTO	World Trade Organization

References

Adhikari, Maha Prasad, (2010), Project Paper on "Understanding and Addressing the Pro-cyclicality Impact of Basel-II in the SEACEN Countries".

Andrew Crockett, (1997, (a) "Why is Financial Stability a Goal of Public Policy" (b) "The Theory and Practice of Financial Stability", Essays in International Finance, Princeton University.

BASEL II Capital Adequacy Framework, (2007), (Updated 2008) for Licensed Commercial Banks.

Basle Committee on Banking Supervision, (1997), "Core Principles for Effective Supervision", Basle, Switzerland.

Bhattarai, Bijay Nath, (2005), "Nepal Rastra Bank: A Journey of Fifty Years", Fifty Years of Nepal Rastra Bank, Milestones, Kathmandu.

Central Bureau of Statistics, (2009), Various Issues, Kathmandu.

Central Bureau of Statistics Website: www.cbs.org.np

Government of Nepal, Ministry of Finance Website: www.mof.gov.np

IMF Executive Board's Conclusion, (2010), "Article IV Consultation with Nepal", Public Information Notice (PIN) No. 10/75, June 17, 2010

Insurance Board Website: www.bsib.org.np

International Monetary Fund Website: www.imf.org

International Monetary Fund Website: www.imf.org

Kaufman, George, (1995), "The US Banking Debacle: An Overview and Lesson", *Financier* 2:9-26.

Lipsky, John, (2010), "The Road Ahead for Central Banks: Meeting New Challenges to Financial Stability", Speech at a High-Level International Conference on Central Banks and Development of the World Economy: New Challenges and a Look Ahead.

Maskay, Nephil Matangi and Subedi, Satyendra, (2009), "Development of the Nepalese Financial System: Need for the Formulation of a Master Plan", *Economic Review Occasional Paper* No. 21.

Mishkin, Frederick, (1999), "Asymmetric Information and Financial Crises: A Developing Country Perspective", Paper Prepared for the World Bank Annual Conference on Development Economics, Washington, D.C.

Nepal Rastra Bank, (2010), Mid April Publications, Kathmandu.

Nepal Rastra Bank, (NRB), Strategic Plan: 2006-10.

Nepal Rastra Bank Website: www.nrb.org.np

Paudel, Narayan Prasad, (2005), "Financial System and Economic Development", in NRB, Nepal Rastra Bank in Fifty Years. Kathmandu.

Securities Board of Nepal Website: www.sebonp.org

Unified Directives issued to licensed Banks and Financial Institutions,(2010), Nepal Rastra Bank.

World Bank Website: www.worldbank.org

Chapter 6

PROMOTING FINANCIAL STABILITY IN THE PHILIPPINES

by
Maria Merzenaida D. Donovan[1]

1. Introduction

The importance of promoting financial stability as a key pillar to sustained economic recovery across countries became more pronounced following the 2007-2008 global financial crisis (Caruana, 2010). Moreover, the recent crisis showed that any instance of financial instability in one country can threaten the stability of the international financial system due to increased globalisation and financial integration in the past decades. Thus, there is a growing global consensus that countries need to expediently address the identified vulnerabilities to shocks in order to develop resilient and deep financial systems (Huang and Wajid, 2002) and to prevent potential ripple effects to other financial systems. Research considered in this paper indicatively defined financial stability as the minimal disruption of financial markets through sound policy making and bank supervision so as to allow financial institutions to efficiently channel funds to productive sectors of the economy (Borio, 2000; Hubbard, 1997; and Mishkin, 1991) and at the same time, develop a financial landscape that promotes greater investor-depositor protection (Santoso, 2010).

Towards this end, some of the initiatives explored across countries look at the enhancement of financial surveillance tools centered in developing financial stability indicators and in enhancing the macro-prudential analysis of supervisory reports. Some are focused on institution building particularly in the creation of dedicated financial stability units, departments or bureaus separate from the banking supervision arm or monetary policy departments of central banks. Largely, these were consistent with Caruana's (2010) view of pursuing a broader policy framework for financial stability. He states that such framework has to

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be reinforced with four basic principles which he termed as "building blocks", to wit: (1) Integration of monetary, financial and fiscal policies; (2) Combination of macro-micro prudential supervision-regulation; (3) Institutional framework for financial stability; and (4) International cooperation. These principles will be discussed at length later in the paper as it examines the progress of the Philippines in developing such framework for the domestic financial system.

In the Philippines, the task of promoting the overall soundness and stability of the financial system continues to gather significant momentum but still requires a strong legal framework and clear institutional support.

Thus, this paper aims to examine various issues and the required institutional support for an effective financial stability framework in the Philippines. It likewise looks into existing regulatory structures, policy initiatives and supervisory tools with a view of identifying the necessary regulatory reforms and supervisory enhancements for BSP's effective supervision of the banking system and promotion of financial stability in the near term.

2. Promoting Financial Stability in the Philippines

The Philippine financial system is largely bank-based rather than market-based. The banking sector, whose total assets accounted for more than 80% of the total resources of the financial system and of gross domestic product or GDP in 2010, takes a primary role in financial intermediation in the Philippines as the main source of credit for the economy.

This unique construct of the Philippine financial system places the task of promoting financial stability inherent in the BSP which has supervisory and regulatory oversight over banks and quasi-banks operating in the Philippines. It is important to underscore, however, that the Philippine financial system is governed by a multiple regulatory regime where the BSP shares oversight responsibilities with other domestic financial regulators such as the Securities and Exchange Commission (SEC) for the non-bank sector and capital market, the Insurance Commission (IC) for the insurance industry, and the Cooperative Development Authority (CDA) for the cooperative industry even if the market share of non-bank sector remains small.

Consistent also with the 25 Basel Core Principles for Effective Banking Supervision, the BSP serves as the main supervisor[2] of the banking system. As a supervisor, it issues prudential rules and adopts applicable internationally accepted

2. It also supervises quasi-banks.

standards and best practices cognizant of the domestic conditions. It likewise appropriately monitors and assesses the operational soundness of all banks and other financial institutions under its supervision.

This section looks at the existing structure of the Philippine financial system and related markets, its current conditions and performance including BSP's existing regulatory regime and extent of compliance with international standards to provide a context on the task of promoting financial stability in the Philippines.

2.1 Overview on the Structure of the Philippine Financial System and Markets

The banking sector (Appendix 1), whose total assets accounted for 80.6% of the total resources of the financial system[3] and 80.1% of gross domestic product or GDP as of end-September 2010, remains the core of the financial system and the primary source of credit for the economy. Such role of the banking system as the primary source of financing for the economy is typical of the Asian model (Goodhart, 2010) particularly in China, India, Indonesia and Japan wherein banks are either government-owned and/or -controlled enterprises or private businesses that are more likely family-owned and/or related to industrial groups and, to some extent, financial conglomerates.

Meanwhile, the market share of non-bank financial institutions remains relatively small as they only accounted for 19.4% of total assets of the financial system and 19.9% of economic output as of end-September 2010. Non-bank financial institutions considered in this paper are investment houses, financing companies, securities brokers/dealers, lending investors, pawnshops, venture capital corporations, government non-bank financial institutions, non-stock savings and loans associations, and credit card companies under the effective supervision of the BSP[4].

3. It excludes the assets of BSP. Likewise, other non-bank financial institutions not under BSP supervision such as investment houses and financing companies without quasi-banking functions and/or trust authorities or are not subsidiaries/affiliates of banks, lending investors and insurance companies and other government financial institutions (GFI) such as the Social Security System (SSS) and Government Service Insurance System (GSIS) are excluded in the computation of total assets of the financial system due to unavailability of or outdated data/information.

4. The BSP supervises all banks and non-bank financial institutions with quasi-banking and/or with trust authority (e.g., investment management activities license). It likewise supervises financial institutions that are subsidiaries/affiliates of banks and quasi-banks or as provided under special laws, i.e., non-stock savings and loan associations under the Revised Non-Stock Savings and Loan Association Act of 1997 or Republic Act No. 6397 and pawnshops under the Pawnshop Regulation Act or Presidential Decree No. 114.

Specifically, banks operating in the Philippines are classified according to their authorities (Appendix 2). Main bank categories are universal, commercial, thrift, rural and cooperative bank. Special types of banks include microfinance and Islamic banks (Section 3, General Banking Law of 2000 or Republic Act No. 8791).

The local banking sector was liberalised and opened to foreign participation following the enactment of Foreign Banks Law or Republic Act No. 7721 in 1994. Foreign banks are allowed to establish branches with full banking authority, to invest in up to 60% of the voting stock of a new banking subsidiary or to invest in up to 60% of the voting stock of an existing domestic bank. The first mode of entry has been closed while there is a moratorium in the establishment of new banks except for banks engaging primarily in microfinance. Thus, foreign banks are now only allowed to pursue the third route of foreign entry: acquisition of 60% voting interests of an existing domestic bank[5].

While foreign interest is limited under the Foreign Banks Law on national patrimony concerns when the banking sector was liberalised in 1994, Section 73 of the General Banking Law of 2000 (Republic Act No. 8791) provides some incentives for greater foreign participation in the banking system. Foreign banks were given a seven-year window from the effectivity of the law (expired on 13 June 2007) to acquire up to 100% of the voting stock of only one bank or increase their existing interest to up to 100% of voting stock of an acquired domestic bank. Some of these foreign banks have taken the opportunity to increase their shareholdings[6] to 100% and/or acquired 100% of an existing domestic bank. Figure 1 summarises the current extent of foreign participation in the provision of banking services in the Philippines.

5. Article 99, Chapter XIII of the Cooperative Code of the Philippines (Republic Act No. 6938) limits the ownership of a cooperative bank to duly established and registered cooperatives in the Philippines, including another cooperative bank.

6. A total of two foreign bank subsidiaries increased their shareholdings to 100% and another two acquired 100% of an existing domestic bank between 2000 and 2002.

Figure 1
Extent of Foreign Participation in the Philippines
As of End-September 2010*
Levels in Billion US Dollars, Ratios in Percent**

Selected Performance Indicators	FOREIGN BANK BRANCHES & SUBSIDIARIES							
	Levels in Billion Dollars **				*% Share to All Banks*			
	Foreign Banks	Foreign Universal Banks	Foreign Commercial Banks	Foreign Thrift Banks	**Foreign Banks**	Foreign Universal Banks	Foreign Commercial Banks	Foreign Thrift Banks
Assets	**16.9**	6.8	9.2	0.9	**11.5**	4.6	6.3	0.6
Loans, net of IBL	**7.5**	2.6	4.4	0.5	**11.5**	4.0	6.8	0.7
Deposits	**10.4**	3.6	6.1	0.7	**9.6**	3.3	5.6	0.7

* *Preliminary*

** *Based on average Philippine Peso per US Dollar rate of PHP44.31 / USD1*

Consequential to the aforementioned liberalisation of the banking sector, foreign banks accounted for 11.5% of the total assets of the banking system[7] and captured a stronger foothold in credit card business in the Philippines.

Another significant feature of the Philippine banking system is the uneven distribution of banking offices throughout the archipelago. Appendix 2 highlights the presence of a large number of banking offices that needs to be contextualised with the archipelagic landscape and topography of the Philippines where these banks are operating. Despite the numbers, nationwide bank density ratio stayed at five banking offices per city and municipality wherein 13 out of 17 regions remained underserved or unserved. In response to this challenge, and to promote greater financial inclusion of the underserved and unserved rural areas, various regulations on electronic banking and mobile banking have been put in place with the purpose to provide alternative delivery channels for banking services in the Philippines.

Across banking groups, universal and commercial banks continued to hold the lion's share of key balance sheet accounts of the banking system on account of their market maturity, branch network and capitalisation. The comparative market shares of key banking groups are summarised in Figure 2.

7. Section 3 of the Foreign Banks Law or Republic Act No. 7721 limits the aggregate share of foreign banks to 30% of banking system's total assets.

Figure 2
Comparative Market Shares of Key Banking Subgroups in the Philippines As of End-September 2010*
Levels in Billion US Dollars, Ratios in Percent**

Selected Performance Indicators	*Levels in Billion Dollars*					*% Share to All Banks*				
	All Banks	Universal Banks	Commercial Banks	Thrift Banks	Rural & Cooperative Banks	All Banks	Universal Banks	Commercial Banks	Thrift Banks	Rural & Cooperative Banks
Assets	**146.1**	110.9	18.1	13.2	4.0	**100.0**	75.9	12.4	9.0	2.7
Loans, net of IBL	**65.2**	47.2	7.9	7.5	2.6	**100.0**	72.5	12.1	11.5	3.9
Deposits	**108.7**	82.9	12.7	10.5	2.7	**100.0**	76.2	11.7	9.7	2.5

* *Preliminary*

** *Based on average Philippine Peso per US Dollar rate of PHP44.31/USD1*

Meanwhile, the country's established financial market consisted of money, bond, foreign exchange, equities and derivatives market. BSP transactions continued to dominate total money market transactions[8] at 90% for the first three quarters of 2010. Interbank swaps at 7% and other transactions made up the remaining shares.

On the bond market, the successful launching of a formal trading platform known as the Fixed Income Exchange (FIE) in 2002 was pivotal in creating an improved secondary market for fixed-income instruments such as government securities, commercial papers, corporate bonds and asset-backed debt securities in the Philippines. The close partnership between the Bankers Association of the Philippines (BAP) and the BSP led to the establishment of the FIE. Other reforms to develop the local bond market include regulatory forbearance on government securities as eligible reserves against deposit liabilities, deposit substitutes and trust products, broadening of investor base through the granting of more licenses for primary dealers and through the introduction of small-denominated securities that appeal to retail investors, bond exchange programme (Gonzales, 2008) and accreditation of credit rating agencies for national ratings to instill market discipline and price discovery. For end-2010, government securities still accounted for the bulk of fixed-income securities traded in the FIE but there was notable increase in corporate listings[9].

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8. Refers to the buying and selling of short-term financial instruments such as Treasury bills, commercial papers, certificates of deposits and other securities with maturity of one year or less.

9. Total volume of corporate debt traded at the FIE reached P114.3 billion (US$2.5 billion) inclusive of the recent addition of P10 billion (US$0.2 billion) Fixed Rate Bonds of Robinson Land Corporation, which marked its first corporate listing in 2010.

On the foreign exchange market, it is noteworthy to consider that the Philippines is one of jurisdictions which adopted a flexible or floating exchange rate regime to ensure BSP's monetary independence and provide some policy elbow room for the BSP to automatically adjust the peso against external shocks. Governor Amando M. Tetangco, in his 19 October 2009 interview with the Philippine Star[10], expounded on the role of the BSP in ensuring the orderly conditions of the foreign exchange market:

> *"We follow a market determined exchange rate with scope for official action to certain excessive volatilities in the rate's movements or when the currency either appreciates or depreciates too fast."*

In terms of infrastructure, the Philippine Dealing System (PDS)[11] is the formal market for USD/PHP[12] transactions in the Philippines while the Philippine Dealing Exchange (PDEx) serves as the electronic trading platform for USD/PHP transactions. Participants in the foreign exchange market include member banks of the BAP and the BSP. Deals are normally carried out via interbank transactions. Instruments available in the Philippine foreign exchange market include spot and forwards for USD, non-deliverable forwards (NDF) and swaps.

The country's equities market are mostly consummated in the two trading floors of the Philippine Stock Exchange (PSE)[13] and governed by "one price, one market" policy through a Maktrade system[14]. Trading of equity securities in the Philippines is carried out through a broker-to-broker market with automatic order and trade routing/confirmation mechanism.

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10. Refers to a newspaper daily with nationwide circulation.

11. The PDS aims to provide mechanisms for price discovery and to instill the law of one price. Through an open exchange trading, investors can make informed business decisions as the market migrated from opaque bilateral transactions and leonine hold of traders who profit from monopoly positions and asymmetry of information into an efficient and transparent trading platform that paves the way for real-time trading, settlement and delivery of purchased debt securities and other financial instruments (i.e., delivery-versus-payment (DvP) and straight-through-processing (STP) mechanisms of the market).

12. Refers to Philippine peso (PHP) per US dollar transactions. In the foreign exchange market, the US dollar (left side) serves as the commodity currency while the Philippine peso (right side) is the term currency.

13. One is maintained in Makati City and the other is located at the PSE head office in Pasig City.

14. Refers to a group of computer equipment, programmes and communications media that collectively enables electronic trading in the Philippine Stock Exchange (PSE).

Stocks listed in the PSE are classified into six sectors: financials, industrial, holding firms, property, services as well as mining and oil sectors. To date[15], there were 150 local and 34 foreign trading participants in the PSE.

The development of local derivatives market took root with BSP's liberalisation of derivatives rules in 2008 (Circular No. 594 dated 08 January 2008). Financial derivatives activities in the Philippines include transactions in cash instruments with embedded derivatives that reshape the risk-return profile of the host instruments such as credit-linked notes (CLNs) and other structured products (SPs). Market participation can be in the form of being an end-user (market counterparty, institutional counterparty, sophisticated individual end-user and other end user), broker or dealer.

Banks are required to secure special authority before they can engage into derivatives transaction in the Philippines. The BSP currently issues four types of derivatives licenses: Type 1 for expanded dealer authority, Type 2 for limited dealer authority, Type 3 for limited user authority and Type 4 for special broker authority. A bank may be granted with more than one derivatives license depending on the degree of sophistication of its risk management system and market maturity. As of end-June 2010, there were 18 banks authorised to engage in derivatives transaction: seven banks with Type 1 authority, nine banks with Type 2 authority, seven banks with Type 3 authority and one bank with Type 4 authority.

The foregoing diversity and granularity of the structure of the Philippine financial system and markets provide a unique construct for the BSP's task of promoting financial stability in the Philippines.

2.2 Current Condition of the Philippine Financial System and Key Markets

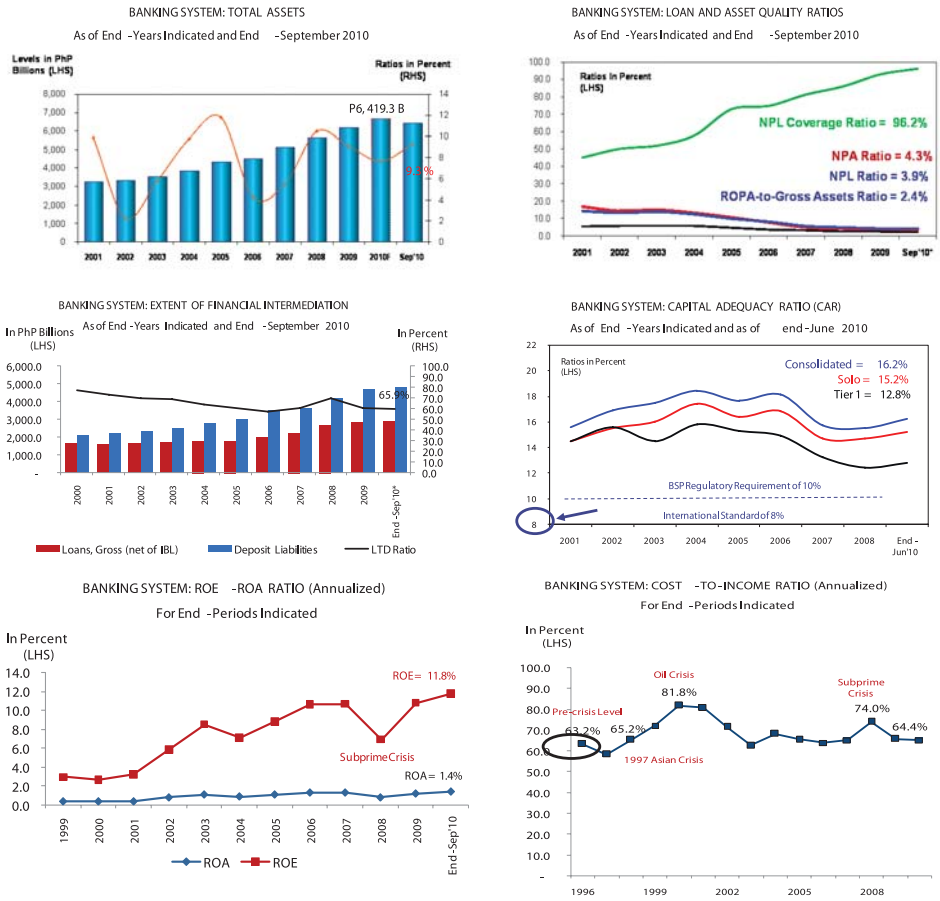
Benefiting from BSP's strong commitment to reforms and improving macroeconomic conditions, the impact of the 2007-2008 sub-prime crisis in the Philippine financial system has been minimal than expected. Banks continued to show sustained resilience against external and internal shocks as evidenced by their continued asset growth, prudent loans-to-deposits or LTD ratio, improving asset quality and stronger capitalisation. Profitability was back at pre-Lehman levels with return on equity (ROE) settling at 11.8% on account of improved cost efficiencies (Figure 1) and positive earnings outlook. These good tidings

15. As of end-December 2006 (latest)

already translated into improved investor and creditor sentiment as evidenced by the positive note in the 2010 Financial System Stability Assessment (FSSA) report of the IMF and favourable rating actions that the country received from Moody's (outlook upgrade) and Standard & Poor's (ratings upgrade).

Meanwhile, non-bank financial institutions under the effective supervision of the BSP similarly exhibited strengths in the key balance sheet and income accounts.

Figure 1
Selected Financial Stability Indicators of the Philippine Banking System



As of end-September 2010, short-term funding or money markets have fully recovered on the back of improved market sentiment.

On the bond market, bonds denominated in local currency grew by 10.8% to P310.2 billion (US$7.0 billion) year-on-year. Debt securities such as treasury bills and fixed-rate treasury bonds issued by the National Government cornered the bulk of public issuances while corporate issuances made up the balance. Trading in the secondary market continued to gather some steam post-Lehman as total trading volume settled at P2,223.0 billion (US$50.2 billion) and recorded a growth of more than 200%. In the international bond market, the National Government (NG) issued a total of US$3.1 billion global bonds for the first three quarters of 2010. In September 2010, the Philippine government was able to successfully issue US$1.0 billion worth of global peso bonds and the first global local currency issuance in Asia.

On the equities market, the local index (PSEi) rose by 37.6% year-on-year to 4,201.1 from 3,052.7 as of end-2010. The positive outlook on the local bourse stemmed from improved corporate earnings and positive economic news that overshadowed investor's global concerns on the Greek crisis and China's policy decision to rein in its runaway growth.

Finally, the foreign exchange market remained upbeat as the peso appreciated by 6.4% to average US$1/P45.27 in the third quarter of 2010 from US$1/P48.15 a year ago (Figure 2). Robust inflows from exports, remittances from Overseas Filipinos, business process outsourcing business operations and tourist receipts supported the general strengthening of the peso against the US dollar. Capital reallocation to emerging markets (EM) like the Philippines on perceived growth prospects and positive yield differentials similarly buoyed the peso appreciation.

Figure 2
Peso Performance Against the US Dollar and the Basket of Other Asian Currencies

Selected Asian Currencies	Appr/Depr (-) 31 Dec 2009 vs. 30 Sep 2010
Japanese Yen	11.7
Malaysian Ringgit	11.1
Thai Baht	9.8
Singaporean Dollar	6.8
Indonesian Rupiah	5.4
Philippine Peso	5.3
Indian Rupee	4.4
New Taiwan Dollar	2.5
South Korean Won	2.1
Chinese Yuan	2.1

Source: Bangko Sentral ng Pilipinas

2.3 Organisation and Institutions to Promote Financial Stability

Broadly, the New Central Bank Act (Republic Act No. 7653, Section 3) outlines the mandate of Bangko Sentral ng Pilipinas (BSP). It provides policy directions in the areas of money, banking and credit. It has supervision over and conducts periodic or special examination of banks and quasi-banks including their subsidiaries and affiliates engaged in allied activities. By virtue of this mandate, the BSP performs the dual role of being the central monetary authority and main supervisor of the banking system.

The Charter, however, is not explicit on the financial stability objective of the BSP. Notwithstanding the lack of explicit definition for the financial stability objective in its Charter, the BSP has formally defined financial stability as the "financial system's efficiency to re-distribute and manage risks in a satisfactory manner and carry out payments settlement while remaining responsive to the demands and challenges faced by the economy" (BSP Financial Stability Report, June 2010 issued internally). Alongside, it has continuously pursued significant reforms to promote greater financial stability for the Philippine financial system.

The BSP was formally established on 03 July 1993 following the enactment of its charter or the New Central Bank Act (Republic Act No. 7653) and has replaced the old Central Bank (CB) founded on 15 June 1948 under Republic

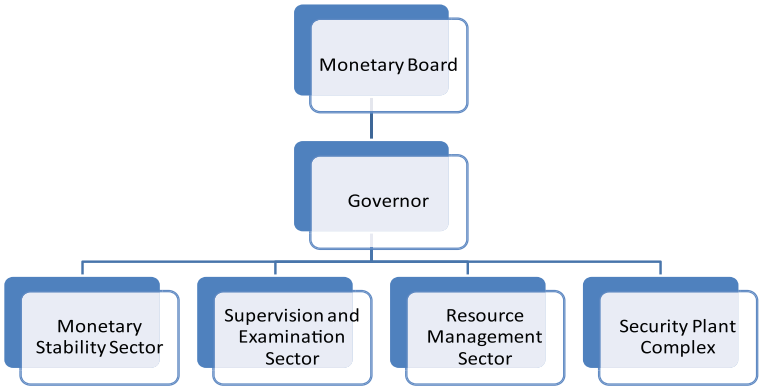
Act No. 265 as the central monetary authority and supervisor of the financial system in the Philippines. With its implicit task of promoting financial stability by virtue of its supervisory and regulatory oversight over the operations of banks and quasi-banks including non-bank financial institutions that are either subsidiaries or affiliates of banks and quasi-banks and/or are with trust authorities, the BSP has adopted a consolidated and risk-based supervision approach consistent with the 25 Basel Core Principles for Effective Banking Supervision.

Briefly, consolidated supervision is a group-wide approach whereby all the risks run by the banking group are taken into account wherever they are booked. This approach is a proactive response to effectively supervise and regulate a consolidated banking organisation that is either a part of or a financial conglomerate itself. Meanwhile, the BSP shifted from the traditional checklist approach to risk-based approach in bank examination to adequately assess banks' board and management oversight, their existing policies, procedures and limits, risk measurements including their risk monitoring and management systems and internal controls. Risk-based approach is also a strategic maximisation of supervisory resources of the BSP.

In the conduct of its functions as the main supervisor of the banking system, the BSP issues rules of conduct and sets standards for the sound and efficient operations of its supervised institutions, conducts regular on-site examination once every 12 months or more, if warranted by special supervisory concerns, oversees compliance to existing banking laws, rules and regulations, monitors and assesses risks to the banking system through the use of various risk-based supervisory tools and technologies, promotes broad-based financial literacy and financial inclusion as well as support private sector-led initiatives to further develop the domestic capital market.

Policies on banking supervision along with the promotion of monetary stability are carried out by the BSP through its seven-man Monetary Board appointed by the President of the Philippines for a fixed term of six years. Operationally, the task of laying the ground work for the institutionalisation of financial stability objective is inherent in the Supervision and Examination Sector (SES) of the BSP, which has an administrative and policy oversight on the operations of all banks and non-bank financial institutions under the effective supervision of the BSP (Figure 3).

Figure 3
BSP Organisational Chart



Source: Bangko Sentral ng Pilipinas

Pursuant to Resolution No. 1443 dated 13 December 2007 of the Monetary Board, the BSP embarked on a phased-in reorganisation of the SES (Appendix 3).

Cognizant of the evolving policy and regulatory landscape post crisis, there is a need to continually re-assess the responsiveness of BSP's supervisory framework to these pressing changes. One important area that can be examined is the adequacy of its existing institutional structures and support for financial stability. Crocket (2000) espouses the "marriage" of micro- prudential approach and macro-prudential approach to supervision in ensuring the stability of the financial system. The assessment of threats to the financial system including the need to reduce attendant risks therein gained more salience after the recent global financial crisis. He believes that the macro-prudential objective of limiting the costs to the economy from financial distress (systemic risk) has to be efficiently intertwined with the micro-prudential objective of limiting the likelihood of failure of individual financial institutions (idiosyncratic risk) to promote greater financial stability. In this area, Caruana (2010) stresses the use of existing supervisory tools to maintain the stability of the financial system wherein central banks in emerging markets, particularly in Asia, have relative advantage over their Western counterparts on account of their active use of macro-prudential tools as early as 1990s (Figure 3).

Figure 3
Asian Experience with the Use of Macro-prudential Tools for Financial Stability

Objective	Tools	Asian Countries in Practice
Manage aggregate risk over time (i.e., procyclicality)	• Countercyclical capital buffers linked to credit growth • Countercyclical provision • Loan-to-value ratios • Direct controls on lending to specific sectors	• China* • China, India • China, Hong Kong SAR, Korea, Philippines, Singapore • Korea, Malaysia, Philippines, Singapore
Manage aggregate risk at every point in time (i.e., systemic oversight)	• Capital surcharges for systemically important banks • Liquidity requirements • Limits on currency mismatches • Loan-to-deposit requirements	• China, India, Philippines, Singapore • India, Korea, Philippines, Singapore • India, Malaysia, Philippines • China, Korea, Philippines

*Being considered
Source: Committee on the Global Financial System, various central bank websites.

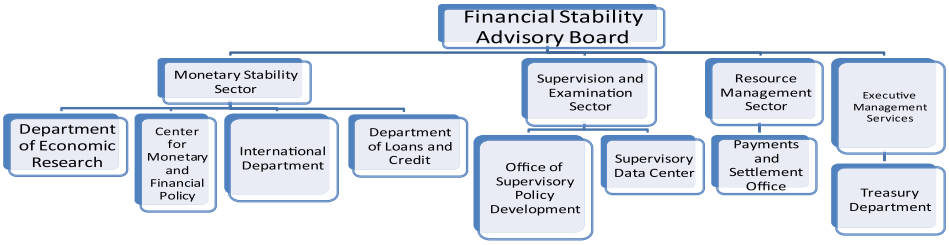
In support of this school of thought, Clement (2010) outlines the two distinguishing features of the macro-prudential approach. First is the focus on the financial system as a whole guided by the overarching objective of limiting the costs of financial distress to economic output. Second is the recognition that aggregate risk is dependent on the collective behaviour of financial institutions ('endogenous'). On the other hand, the micro-prudential approach limits the risk of failure of individual institutions in terms of depositor-investor protection. It treats aggregate risk independent of the collective behavior of financial institutions ('exogenous'). An ideal financial stability framework has institutional mechanisms and support for three important aspects: macro- prudential surveillance (new paradigm), micro-prudential supervision (established paradigm) and crisis resolution. Thus, it is evident from Appendix 3 that the current organisation of the SES and the BSP, for that matter, can be further improved to accommodate a clear institutional structure for macro-prudential surveillance and crisis resolution mechanisms.

Corollary to the reorganization of the SES were the comprehensive improvements in supervisory techniques that are focused on the adoption of the ladder approach in the imposition of corrective and punitive measures on erring

banks, including well-established principles under a prompt corrective action framework (Circular No. 523 dated 23 March 2006) for the timely exit of problem banks, which will be further discussed in Chapter 3.4 'Crisis Resolution Mechanisms'. The reorganisation also introduced the provision of the necessary training and logistical support for risk-based examination of bank supervisors.

In upholding financial stability, the BSP likewise joined its regional peers with its periodic publication of Financial Stability Report (FSR). The report is internally circulated at the moment but initiatives are underway to make the report for general circulation (public) in the future. Anent to the publication of the report, the BSP has established the FSR Advisory Board to provide broad directions in identifying and assessing the key challenges and potential risks to the stability of the financial system. The Board provides guidance to the FSR Technical Staff in ensuring that the report reflects BSP's thrust in promoting financial stability consistent with its monetary policy objectives and the attainment of a balanced and sustainable growth of the economy (Figure 4).

Figure 4
The FSR Advisory Board of the BSP



Source: Bangko Sentral ng Pilipinas

On 14 September 2010, the BSP established a high level Financial Stability Committee (FSC) composed of senior management and chaired by the Governor of the BSP. The Committee is charged with defining BSP's organisational roadmap to adequately mitigate the built-up of systemic risks to the financial system and further advance an enabling the financial stability framework in the Philippines.

Alongside these internal structures to promote financial stability, the BSP also forged cooperative arrangements with other domestic financial regulators through the Financial Sector Forum (FSF) to ensure the overall soundness and stability of the financial system. The FSF is a voluntary inter-agency body consisting of the BSP, Securities and Exchange Commission (SEC), Insurance Commission (IC) and Philippine Deposit Insurance Corporation (PDIC) established on 05 July 2004 for the coordinated supervision and regulation of the Philippine financial system. The SEC provides regulatory oversight to other non-bank financial institutions not under BSP supervision and the corporate sector while the IC supervises the insurance industry. On the other hand, the PDIC provides deposit insurance coverage to banks operating in the Philippines including branches and subsidiaries of foreign banks up to a maximum of P0.5 million (US$10.9 thousand) per depositor. One of the strengths gained in this endeavor was the institutionalised information exchange among the key regulators of the financial system, which aided the BSP to continually fine tune its macro- and micro-surveillance mechanisms and tools.

These regulators together with CDA and chairmanship of the BSP have worked closely with the national government in the drafting of the finance chapter of the Medium-Term Philippine Development Plan (MTPDP) which outlines the development plans of the Philippine financial system from 2011 to 2016 with special emphasis on the promotion of financial stability objective over the medium term.

2.3.1 Regulations and International Compliance

The hard lessons of the 1997 Asian financial crisis provided an impetus for local policymakers to pursue some committed and coordinated reform efforts for the restructuring of the financial sector. Structural measures pursued post crisis centered on streamlining of non-viable financial institutions, strengthening of viable financial institutions, establishment of frameworks for re-capitalisation, restructuring of the corporate sector supported by related development of capital markets and improvement in prudential regulation, supervision and market discipline (Lindgren, C., et al., 1999).

The BSP, for its part, continues to build on its existing regulatory framework and progressively aligns local banking practices with international standards and best practices in recognition of the increasing sophistication of the global financial services industry and domestic conditions. Moreover, it has recognised the need

to structure significant regulatory enhancements and to incorporate the lessons of the recent 2007/2008 global financial crisis into the emerging domestic regulatory landscape.

Key reforms toward this end was the adoption of IAS/IFRS[16] aligned accounting and financial reporting standards (PAS/PFRS)[17] in 2005, full implementation of Basel II in 2007, progressive alignment of supervisory tools and techniques with that of the 25 Basel Core Principles for Effective Banking Supervision and continuing alignment of existing corporate governance framework with that of the OECD.

For the other non-bank financial institutions not under BSP supervision and the corporate sector, the SEC similarly adopted the PAS/PFRS in 2005. It also issued the revised code of corporate governance in 2009 for all registered corporations and branches or subsidiaries of foreign corporations operating in the Philippines.

Overall, these structures, current conditions, extent of compliance with international standards and best practices of the Philippine financial system provide a unique context to the task of promoting financial stability particularly in addressing the attendant risks of the financial system.

3. Risks Confronting the Philippine Financial System

Borio, et al. (2000) believe that the procyclicality of the financial system is largely attributed to the inappropriate response of financial market participants to changes in risk over time. Risk is defined both as the level of expected losses and the potential for large unexpected losses (p.4). Statistically, risk is measured and characterised in terms of its probability distribution over future outcomes. Part and parcel of difficulties encountered in risk measurement is underestimation of the implication of boom and bust cycles of the economy to a procyclical financial system. In this area, appropriate policy response particularly in establishing supervisory rules on risk management and in assessing the attendant risks of the financial system is pivotal. This section looks at various risks confronting the financial system and BSP's supervisory tools and technologies to mitigate such risks in support of its overall financial stability objective.

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16. Stands for International Accounting Standards and International Financial Reporting Standards
17. Refers for Philippine Accounting Standards and Philippine International Financial Reporting Standards

3.1 Risk Assessment Matrix for the Philippine Banking System

Key risks confronting the banking system and their potential impact on financial stability are summarised in Appendix 4. The matrix was derived from the country's update for Financial Sector Assessment Programme (FSAP) with the International Monetary Fund in 2009.

3.2 Risk-Based Supervision of the BSP

The BSP's adoption of risk-based supervision approach in 1997 was aimed at providing a clear process for risk assessment inclusive of corresponding design and execution of supervisory activities for various risks confronting the banking system. In 2006, the BSP issued the 'Supervision by Risk' circular that clearly sets forth its expectations on banks' risk management in relation to its risk-focused supervision function (Circular No. 510 dated 3 February 2006). The approach warrants the effective identification, measurement, monitoring and control of various risks: credit, liquidity, market and operational risks. In the conduct of its risk-based supervision, the BSP follows two basic principles. First, it allows banks to take risks so long as banks demonstrate the ability to manage and price for those risks as well as hold capital commensurate to their risk-taking activities. Second, the approach treats banks differently depending on each bank's demonstrated ability to manage risks. It does not penalise well-managed banks by making them operate under standards designed to keep weak, poorly managed banks solvent.

Borio, et.al. (2000:2) underscores the need to measure risk accurately to enhance the soundness of banks and reduce the procyclicality of the financial system. One of the proposed policy responses relevant to the Philippine financial system is the establishment of supervisory rules that will promote better assessment of risk and resilience of the financial system against misperceptions of risk. Towards this end, some ground rules were issued on banks' risk management oversight: technology risk management for technology-related risks (Circular No. 511 dated 03 February 2006); market risk management to effectively manage various market risks, such as interest rate and foreign exchange risks (Circular No. 544 dated 15 September 2006); and liquidity risk management for ensuring liquidity positions of financial institution (Circular No. 545 dated 15 September 2006). On credit risk management, the BSP has prescribed the guidelines for the development and implementation of internal credit risk rating system (ICRRS) of banks (Circular No. 439 dated 05 July 2004).

Parallel to this, the BSP has issued a risk-based examination manual inclusive of detailed risk-focused examination module for the effective planning and scoping of customised (based on asset size and business activities) examination of financial institutions.

The adoption of risk-based supervision has paved the way for the efficient use of supervisory resources but it demands the continuous re-tooling of bank supervisors to the many changes in risk monitoring and management aspects of bank supervision.

3.3 Key Risks and Measurement Tools

Globally, bank supervisors devote considerable resources in developing an array of tools and measurement systems to adequately assess the risks confronting the financial system. Risk measurement practices include the use of peer group analysis, like the BAKred Information System (BAKIS) in Germany and Bank Performance Rating (BPR) system in Germany and in the Philippines. The various rating systems deployed are: the Capital Adequacy, Asset Quality, Management, Earnings, Liquidity and Sensitivity to Market Risks (CAMELS) used in most ASEAN countries and in the United States; System for Estimating Exam Ratings (SEER) in the United States; and PATROL rating system in Italy as a complementary tool to determine the probability of financial distress in the near term (Borio, et al., 2000 and Van den Bergh & Sahajwala, 2000). In view of the foregoing, key risks and corresponding measurement tools of the BSP are summarised in Appendix 5.

3.4 Crisis Resolution Mechanisms

Review of the country's existing crisis resolution framework showed that regulations and mechanisms on financial safety nets include BSP's function as the lender of last resort (LLOR) and PDIC's deposit insurance coverage. In the event of a crisis, the BSP (banker's bank) can provide emergency loans to distressed banks for liquidity purposes. Meanwhile, PDIC's deposit insurance coverage provides deposit protection in instances of bank failure. The latter can also provide financial assistance to distressed banks.

Supplementary to this, there are early problem bank resolution mechanisms in place to mitigate the likelihood of systemic bank failure[18] in the Philippines.

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18. Lindgren, C. (1999) similarly outlines the 10 critical points in managing and resolving a systemic bank crisis (conceptual framework).

These include BSP's prompt corrective action (PCA) framework and the government's Strengthening Programme for Rural Banks (SPRB). The PCA framework (Circular Nos. 523 dated 23 March 2006, as amended by Circular No. 664 dated 15 September 2009) sets forth conditions or events such as the CAMELS composite rating[19] of below "3", capital adequacy ratio of below 10% (BSP minimum requirement) or serious supervisory concerns that might trigger the enforcement of the PCA. One requirement under BSP's PCA framework is the execution of a memorandum of understanding (MoU) as a binding legal agreement between regulators and bank management to pursue the necessary requirements of the PCA plan for the immediate restoration of normal operations of troubled banks.

On the other hand, the SPRB is a joint undertaking of the BSP and the PDIC to extend financial aid to investors for two years who would be acquiring capital-deficient rural banks. Each contributed a total of P2.5 billion (US$0.1 billion) to the programme, which is seen to encourage industry consolidation particularly within the rural banking industry and minimise bank closures in the near term.

While existing crisis management framework is centered on crisis prevention, the BSP has sufficient tools and maturity to deal with crisis situations. Policy responses implemented by the BSP to mitigate the potential ripple effects from the 2007-2008 global financial turmoil, for instance, include the adoption of accommodative monetary policy, reduction in reserve requirements and the opening of a dollar repurchase window[20] to induce liquidity in the system and allowing banks to re-classify their financial assets to cushion the effects of plummeting market values on their books in accordance with the provisions of BSP Circular Nos. 626 dated 23 October 2008 and 628 dated 31 October 2008 consistent with the provisions of Amendments to IAS 39 and IFRS 7. Supportive of BSP's moves, the National Government implemented the US$7 billion fiscal stimulus programme (Source: UN/DESA and DOF websites) to jump start public spending in 2008-2009, thereby accounting for 4.1% of gross domestic product (GDP). While these have been effective mechanisms in the absence of real crisis scenario like those experienced by the United States and European countries, there is no guarantee that existing mechanisms would be sufficient if a real crisis situation hit the system.

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19. Refers to a rating system for capital adequacy, asset quality, management, earnings, liquidity and sensitivity to market risks with "5" as the highest and "1" lowest.

20. This allows banks to borrow dollars from the BSP.

Moving forward, the existing crisis resolution mechanism can be restructured as a more enabling crisis management framework specifically to imbed the two-pronged approach of crisis prevention and crisis resolution mechanisms in promoting financial stability. Policy choices that can be explored towards this end include regulatory forbearance, incentives for loan loss write-offs, government assisted sale and/or recapitalisation of distressed financial institutions (Calomiris, et al., 2004) and the introduction of regulatory innovations such as the regulatory hybrid security (Flannery, 2005). Enhancement of existing capital rules to incorporate the applicable Basel III provisions likewise form part of the emerging policy landscape in the near term.

4. Supporting Tools for Monitoring Financial Stability

The task of promoting financial stability can only be effective if the bank supervisor has an array of macro- and micro-surveillance and analytical tools within its disposal. Cognizant of such need, the BSP has developed various surveillance and analytical tools to ensure the overall safety and soundness of all banks and other financial institutions under BSP supervision. These tools include financial stability indicators consisting of macro- and micro-prudential indicators, rating systems, early warning systems (EWS), stress testing, and various periodic reports related to financial stability.

4.1 Financial Stability Indicators

Carson and Ingves (2003) define financial stability indicators as supervisory metrics to monitor the current condition of the financial sector and assess its vulnerability to shocks. In the Philippine context, these consisted of a milieu of macro- and micro-prudential indicators which provide a framework for the assessment of the soundness of the financial system. Hilbers, Krueger and Moretti (2000) distinguished macro-prudential[21] indicators as macroeconomic variables that influence the soundness of the financial system while micro-prudential indicators are leading indicators on the health of individual financial institutions comprising the financial system. One of the main advantages in the use of FSIs as a monitoring tool is the wealth of financial and non-financial data available at BSP's disposal as a supervisor. The only downside is the administrative costs that come with continuing development of effective indicators and

21. Cf: Clement, P., (2010), "The term 'macroprudential': origins and evolution", BIS Quarterly Review, March 2010

enhancement of processes and infrastructures required by these FSIs. The summary of these macro- and micro-prudential indicators monitored by the BSP is outlined in Appendix 6.

4.2 Bank Rating Systems

As a micro-prudential supervisory tool, the BSP has adopted various rating systems to assess bank's individual performance and supplement its risk-based examination approach. These include the CAMELS, RAS, ROCA, SOSA and TRS rating systems. Despite the fragmentation and susceptibility to personal bias of on-site bank supervisors who are giving the ratings, these rating systems provide sufficient supervisory insight on individual and peer performance of supervised financial institutions.

4.2.1 The CAMELS Rating System

The CAMELS rating system stands for Capital Adequacy, Asset quality, Management, Earnings, Liquidity and Sensitivity to market risk (Cole & Gunther, 1995a and Shajwala & Van den Bergh, 2000). It provides an assessment of bank's individual performance in these areas with ratings of '1' (lowest) and '5' (highest). A bank is expected to maintain a composite rating of at least '3'. Below this, it is already a trigger for prompt corrective action (PCA)[22] from the BSP and considered a supervisory concern, which may warrant various supervisory actions such as special examination[23].

4.2.2 The RAS Rating System

The BSP has adopted the Risk Assessment System (RAS) to supplement its risk-based examination approach. A total of eight categories of risk: credit, market, interest rate, foreign exchange, liquidity, operations, legal and compliance, are measured and assessed in terms of quantity, quality, aggregate level and direction of risks undertaken by banks in pursuit of their profit and growth objectives.

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22. Refers to BSP's early problem bank resolution strategy. The enforcement of a PCA is authorised under Section 4.6 of the General Banking Law of 2000 (Circular No. 523 dated 23 March 2006) which seeks to restore a bank that is found in its early stages of non-compliance with standard conditions or ratings, to normal operations within a reasonable period of time. Trigger events for the enforcement of a PCA include low capital ratios (capital adequacy ratio or CAR, Tier 1 risk-based ratio or leverage ratio), below '3' CAMELS composite rating or Management rating and serious supervisory concern.

23. Under the law, the BSP examines banks at least once every 12 months. Banks with supervisory concern may be examined more than once under special examination.

4.2.3 The ROCA Rating System

In supervising branches of foreign banks, the BSP has adopted the ROCA rating system which focuses on Risk Management, Operational Control, Compliance and Asset Quality.

4.2.4 The SOSA Rating System

The Strength of Support Assessment (SOSA) rating system measures the strength of support of parent companies to their respective foreign bank branches in the Philippines. It responds to various cross-border issues and other supervisory concerns (e.g., conglomerate structures and repatriation of profits).

4.2.5 The Trust Rating System

The Trust Rating System (TRS) is an internal supervisory tool prepared after each examination of the trust entity. It aims to allow the BSP to effectively supervise the operations of trust department of banks and non-bank financial institutions authorised to engage in trust, other fiduciary business and investment management activities. It looks at five critical areas: capability of management; adequacy of operations, controls and audits; quality and level of earnings; compliance with applicable laws, rules and regulations; and sound fiduciary principles and management of fiduciary assets.

4.3 Early Warning Systems

In order to address both systemic and idiosyncratic risks confronting the financial system, the BSP adopted a two-pronged approach for its early warning systems (EWS): EWS for the macroeconomy which focuses on currency crisis-contagion effects and EWS for bank solvency. Early warning systems are essentially data-driven statistical models used to predict the health of the financial system. It employs advanced quantitative techniques that translate various indicators of bank strength and performance into estimates of risk (Whalen, 1991; Cole & Gunther, 1995b and Laviola, 1998).

These tools provide empirical basis for supervisory assessment, but the use of these tools has been limited, mostly, on an *ad-hoc* basis.

4.3.1 EWS for the Macroeconomy

Guided by overarching objective to fully institutionalise the process of managing risks, the BSP developed the EWS model for currency crisis. Moving forward, such model will incorporate contagion effect[24] (BSP Financial Stability Report 2007-2008:12-14). Currency crisis is defined as a situation where speculative attacks on the currency leads to sharp depreciation, large decline in international reserves or a combination of the two. To measure the crisis, an index of exchange market pressure (EMP) was developed to calculate the percentage change in the nominal exchange rate less percentage change in international reserves. Crisis occurs if the EMP index for a given period is greater than the threshold, which is defined in the model as follows:

$$\text{Threshold} = \mu EMP + 1.5 * \sigma EMP$$

where μEMP represents the mean of historical EMP indices and stands for σEMP the standard deviation of historical EMP indices. Other indices for the external, monetary, financial, real and fiscal sectors including that of the global economy were similarly developed to measure vulnerability.

4.3.2 EWS for Bank Solvency

The EWS model of the BSP for bank solvency is a linear regression model with an aim to provide an indicator of bank solvency by producing a one-year forecast of bank's residual capital cover (RCC) ratio. The RCC ratio represents the ratio of residual capital after write-down of non-performing assets to net assets. It is formally defined as:

$$\text{RCC ratio} = \frac{K - APP + PROV - (d*NPA)}{TA - APP + PROV - (d*NPA)}$$

where K represents the bank's total capital, APP pertains to appraisal increment, PROV stands for the total provisions set up against non-performing assets, NPA represents the level of non-performing assets defined as the sum of non-performing loans, restructured loans and ROPA (real and other properties acquired) and *d* stands for the write-down factor (0%-100%). Under this conceptual framework, a large and positive RCC value implies that more capital

24. Contagion effect will be measured by the following indicators or macroeconomic variables: real effective exchange rate, current account balance, domestic investment, export movements (YoY), trade balance, gross domestic product and stock price movements (YoY).

is available to back up written-down assets while a negative RCC ratio implies that bank capital is effectively wiped out. Based on international norms, the ideal RCC ratio should be at least 4%.

Further, the RCC ratio observed during period *t* (present time) is a function of a vector of explanatory variables observed during period *t-1* (prior time). The parameter estimates from this model can be used in combination with the values of the explanatory variables in period *t* to forecast the RCC ratio in period *t+1* (future time). The model produces a one-year forecast of the RCC ratio written as follows:

$$\text{RCC ratio}_{i,t} = \beta_0 + \beta_1 * X1_{i,t-1} + \ldots + \beta_k * XK_{i,t-1} + e_{i,t}$$

where $\text{RCC ratio}_{i,t}$ is the RCC ratio observed at bank *i* during period *t,* $X1_{i,t-1, \ldots,}$ $XK_{i,t-1}$ are the *K* explanatory variables observed at bank *i* during period *t-1,* $\beta_0, \ldots, \beta_k$ are the K coefficient estimates for the *K* explanatory variables and $e_{i,t}$ is the randomly distributed error term. The model combined observations for different banks (cross-sectional data) with observations for each bank in different time period (time series data) over latest 36-month period to create a sufficiently large sample for accurate and precise estimation. Finally, the model employs ordinary least squares (OLS) estimator for its forecasts.

4.4 Stress Testing

For its stress testing model, the BSP performs periodic stress tests on absorption capacity of bank capital using a modified IMF stress tester 2.0, which took root on Èihák (2007)'s seminal paper on applied stress testing. Such model aims to identify various vulnerable areas of concern, to construct a "stressed" scenario and to align the results of such scenario with comprehensive analysis of financial indicators (culled from submitted balance sheets and income statements) of banks. In the assessment of credit risk, for instance, a proportional increase in non-performing loans or NPLs of 20% was introduced as one of the 'shocks' to determine the impact on bank capital.

4.5 Reports

Various reports to promote financial stability are outlined in Appendix 7. These reports already provide adequate assessment on the condition of the financial system but continuing efforts to expand the utility of these reports into other facets of financial stability function needs to be explored.

5. Financial Stability Assessment

While significant strides have been taken to promote financial stability, the function itself can still be improved in terms of providing a strong legal framework, institutional support, approach, methodologies and analysis tools.

5.1 Legal Framework for Financial Stability

The paper discussed at length the lack of explicit language in the current Charter of the BSP (Republic Act No. 7653) for its financial stability objective. Bingham (2010) notes that the current legal frameworks of most central banks rarely set out a clear and well-specified mandate for financial stability. Such mandate has to be distinct and separate from their mandates on price stability, bank supervision including oversight of payments and settlement system of any given economy.

Considering the crucial role played by central banks when systemic financial crisis occurs, he believes that they will inevitably have prominent involvement in crisis resolution and natural interest in crisis prevention (basic components of crisis management). Hence, a wider and more explicit financial stability mandate will determine what a central bank should do and should not do during a crisis situation.

Central banks need explicit powers and instruments to achieve their financial stability goals (Caruana, 2010:6) and that has to be fully articulated in the proposed amendments of the BSP Charter. The proposed legislation is currently pending for re-filing before the 15th Congress.

5.2 Institutional Support for Financial Stability

A more specified and well-explicit mandate on financial stability entails institutional changes to accommodate permanent administrative structures and regulatory infrastructure needed to maintain the stability of the financial system. Financial stability cannot be achieved without functional market discipline, effective monitoring and adequate resolution regimes to deal with both idiosyncratic and systemic risks of the financial system. A clear and well-defined institutional framework for financial stability will ensure the timely monitoring and effective enforcement of regulations (Caruana, 2010 and Hannoun, 2010).

At present, the discharge of financial stability functions are carried out on an *ad-hoc* basis with proper representation from key departments of the BSP

that perform related functions. While it fosters institutional cooperation, no single department is focused or accountable for the promotion of financial stability. Delays in the publication of the FSR report, for instance, illustrate the need to establish a permanent and dedicated organisational complement to the pursuit of financial stability objective of the BSP.

Recently, the BSP took a step in the right direction with the establishment of a high level Financial Stability Committee (FSC) last 14 September 2010 composed of senior management and chaired by the Governor of the BSP. This likewise sets the tone on future policy directions and institutional priorities of the BSP in the pursuit of its financial stability objectives.

5.3 Financial Surveillance

Efficient financial surveillance framework guided by solid research and information gathering discipline is crucial in carrying out the financial stability function (Huang & Wajid, 2002 and Caruana, 2010) of the BSP. The BSP currently obtains considerable micro-prudential data from its prudential reports and databases but extensive data sharing with banking associations and other government agencies is necessary to determine a more accurate picture on the health of the financial sector. Some of the required information refers to the scale of risk-taking and maturity transformation of Top 10 banks, for example, up-to-date aggregate indicators for non-bank financial institutions that are outside BSP supervision, data on corporate and household sector and other leading indicators for the monitoring of systemic risk.

Also, existing models and surveillance tools have to be continuously redefined in line with abrupt market changes and adverse global macroeconomic developments to ensure the resilience of individual institutions and the financial system as a whole. The increasing complexity and interdependencies of the financial system highlight the need for increased data capture and enhancement of current statistical tools.

Apart from the need to strengthen the current financial surveillance infrastructure, there is growing consensus for increased disclosure and transparency in financial stability assessments (Huang and Wajid, 2002). In this area, the BSP has taken a concrete step in the right direction with establishment of the FSR Advisory Board and internal publication of its Financial Stability Report (FSR). The FSR, which serves as an umbrella report dedicated to financial stability assessment, is circulated internally and has to be continually enhanced to provide a venue to critically assess the threats and vulnerabilities of the financial

system. The planned general circulation in the near term needs to be complemented with appropriate communications strategy and establishment of a more permanent institutional support to ensure the efficient functioning of markets and to maintain consumer-investor confidence.

Overall, these encapsulate the main ongoing concerns on the task of promoting financial stability in the Philippines.

6. Recommendations and Policy Implications

Cognizant of the higher interrelationship and interdependency of monetary, financial and fiscal policies in maintaining a sound and stable financial system, Hannoun (2010) urges global policymakers to consider a new paradigm for financial stability (Figure 4). Individually, he notes that these policy areas have limited effectiveness in terms of preventing the occurrence of financial crisis but he hopes that effective integration of these policies that tend to complement each other may be the key towards a global financial stability framework.

Figure 4
Comparative Policy Areas for Financial Stability Framework

Policy Area	Primary Objective	Financial Stability Objective
Prudential (Financial)	Limit distress of individual financial institutions	Address systemic risk (cross-section, over time)
Monetary	Stabilise prices and exchange rate	Lean against boom-bust cycles in credit and asset prices
Fiscal	Manage demand counter cyclically	Maintain fiscal buffers that allow a response to financial system stress

Note: Derived from Hannoun, H., (2010), "Towards a Global Financial Stability Framework", Speech delivered at the
45th SEACEN Governors' Meeting in Siem Reap, Cambodia, 26-27 February 2010

In the pursuit of this apparent paradigm shift in policy focus, it is recommended that some form of institutional arrangement among key entities involved in financial stability (financial, monetary and fiscal authorities) be in place to provide clarity of thinking and ease in coordination for this function. Such institutional arrangement is likewise seen to guide the individual decision-making processes of these different regulatory authorities that may affect the stability of the financial system. Mechanisms and safeguards, however, have to be similarly articulated to prevent the eventuality that greater interaction with

other government authorities might result in reduced independence of the BSP to conduct its monetary policy and perform its financial stability function.

Second, a strong legal framework determines the range of powers and accountability of central banks in the discharge of their financial stability functions (Bingham, 2010). Hence, it is recommended that the BSP works closely with Congress for the latter to pass the required legislative support for its financial stability mandate, which is expected to be explicitly specified and defined in the proposed amendment of the BSP Charter.

Third, clear and well-defined institutional support has to be established on a more permanent basis within the BSP, which institutional support needs to be a separate but complementary function to banking supervision and monetary policy. Financial stability groups may come in the form of a unit, department or bureau depending on central bank priorities and cost considerations. They can handle financial surveillance, policy coordination and publication of FSRs and/or related reports, advisories and information bulletins.

Institutional support would also entail investment in financial surveillance infrastructure and technologies. Monitoring and assessment of risks through bank reports may be complemented with increased information sharing with other financial regulators such as the SEC and IC for the data on non-bank financial institutions outside the effective supervision of the BSP. It is also recommended that the BSP undertake a formal and separate memorandum of understanding (MoU) with these financial regulators together with fiscal authorities, other government agencies such as the National Economic Development Authority (NEDA), National Statistics Office (NSO) and various industry associations to acquire adequate and timely information concerning the financial system. For macro-prudential and other financial stability indicators (FSI), for example, the BSP has largely complied with the 'core' metric sets[25] (Appendix 5) prescribed by the International Monetary Fund (IMF) but migration to 'encouraged' metric sets can happen sooner rather than later if these cooperative arrangements are formalised alongside with improvements in the gathering/populating, warehousing, management, mining and analysis of data and development of statistical models for a more accurate assessment of risks and health of the financial system.

25. Cf: Evans, et al, (2000) and Carson & Ingves (2003).

The active use of statistical surveys for data gathering requirements on individual bank data in between reporting or examination periods is similarly recommended for the effective discharge of financial stability function of the BSP.

This paper, however, recognises the institutional costs and investment requirements (i.e., human resources, information technology or IT and related infrastructures) of the proposal particularly with other government agencies where individual budget allocations have to go through congressional review and approval. In view of the foregoing, funding from external sources such as technical assistance (TA) or official development assistance (ODA) from multilateral agencies may be secured by the BSP or national government in behalf of these government agencies, subject to proper accounting and audit post-project implementation.

Moreover, the BSP needs to establish a clear and effective crisis management framework (as an integral component of institutional support to promote financial stability) that will outline the orderly resolution of distressed financial institutions in a manner that preserves the normal operations of financial institutions and markets (Bingham, 2010). Such framework has to be supported by the twin objectives of crisis prevention and crisis resolution. Existing financial safety nets such as BSP's lender of last resort function, PCA framework, deposit insurance coverage and financial surveillance mechanisms may be realigned with other crisis management strategies and processes as the BSP build on its own crisis management framework. Ideally, crisis management framework shall provide liquidity and restore normalcy in the most expedient and transparent manner during a financial crisis. It is guided by the precepts of early crisis preparation and timely coordination among concerned authorities that eventually will allow banks and other financial institutions some mechanisms or processes wherein they can disclose how they will 'die' during a crisis without fear of irrational behavior from other market participants or the public.

The BSP has to continue with its existing initiatives in forging international cooperative arrangements with international regulators to promote financial stability particularly in terms of standards setting or benchmarking, monitoring of fragilities, cross-border issues and information exchange.

Finally, it is recommended that the BSP remains in tune with market developments and recent innovations in financial regulation particularly in the adoption of countercyclical regulations cognizant of domestic conditions post-crisis (Hannoun, 2010 and Santoso, 2010).

7. Conclusion

Evidently, the task of promoting financial stability and the pursuit of a clear financial stability function among regulators have been a frontier policy area after the recent global financial crisis. In particular, it highlights the important role of central banks in crisis resolution and their apparent lack of clear and wider mandates for financial stability function.

In the Philippines, the task of promoting the stability of the financial system has been a widely acknowledged policy direction but remains largely, a work in progress. No single financial supervisor yet has been tasked to take the lead role in promoting financial stability even if there was an implied acknowledgment pointing to the BSP as the supervisor of the banking system in a predominantly bank-based financial system in the Philippines. The definition of financial stability similarly remains amoebic for any particular institution to assume full responsibility.

While the BSP is one of those central banks that perform the dual role of being a monetary authority and at the same time the supervisor of the financial system, it does not have an explicit financial stability objective in its Charter or supervisory powers over other financial institutions such as insurance companies or investment houses if they are not subsidiaries or affiliates of banks. It is, then, important to explicitly define the oversight responsibility and function of the BSP in relation with other existing financial regulators, if it has to assume the responsibility of promoting financial stability in the Philippines after the amendment of its Charter.

Post crisis, the task of promoting financial stability involves the accurate identification of vulnerabilities, candid evaluation of policy actions, timely crafting of rules, regulations and policies including the appropriate enforcement of rules. The interdependency of financial, monetary and fiscal policies in the conduct of an effective financial stability function has to be clearly understood and institutionalised. These ongoing concerns and challenges require committed reform mindset and coordinated, yet careful implementation of crucial changes to promote greater stability for the domestic financial system. The old ways of seeing things may no longer necessarily suffice. Hence, it is necessary for the Philippines to join the rest of the world in developing a new framework for financial stability. The first step towards this end is the inclusion of an explicit financial stability objective in the amended Charter of the BSP.

Abbreviations

APP	Appraisal Increment
BAP	Bankers Association of the Philippines
BSP	Bangko Sentral ng Pilipinas
CAMELS	Capital Adequacy, Management, Earnings, Liquidity and Sensitivity to Risks
CDA	Cooperative Development Authority
CLN	Credit-linked Notes
DOF	Department of Finance
DvP	Delivery versus Payment
EM	Emerging Market
EMP	Exchange Market Pressure
EWS	Early Warning System
FIE	Fixed Income Exchange
FSC	Financial Stability Committee
FSI	Financial Stability Indicator
FSR	Financial Stability Report
FSSA	Financial System Stability Assessment
GDP	Gross Domestic Product
GFI	Government Financial Institution
GSIS	Government Service Insurance System
IAS	International Accounting Standards
IC	Insurance Commission
ICRRS	Internal Credit Risk Rating System
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IT	Information Technology
K	Total Capital
LLOR	Lender of Last Resort
LTD	Loan-to-Deposit Ratio
Maktrade	Electronic trading system
Mean	Average
MTPDP	Medium-Term Philippine Development Plan
MOU	Memorandum of Understanding
NDF	Non-deliverable Forwards
NEDA	National Economic and Development Authority
NG	National Government
NPA	Non-performing Asset
NPL	Non-performing Loan
NSO	National Statistics Office

ODA	Official Development Assistance
OLS	Ordinary Least Squares
PAS	Philippine Accounting Standards
PCA	Prompt Corrective Action
PDEx	Philippine Dealing Exchange
PDIC	Philippine Deposit and Insurance Corporation
PDS	Philippine Dealing System
PFRS	Philippine Financial Reporting Standards
PHP	Philippine Peso
PROV	Total Provisions Against NPAs
PSE	Philippine Stock Exchange
PSEi	Philippine Stock Exchange Index
RAS	Risk Assessment System
RCC	Residual Capital Cover
ROCA	Risk Management, Operational Control, Compliance and Asset Quality
ROE	Return on Equity
ROPA	Real and Other Properties Acquired
SEC	Securities and Exchange Commission
SEER	System for Estimating Exam Ratings
SES	Supervision and Examination Sector
SOSA	Strength of Support Assessment
SP	Structured Products
SPRB	Strengthening Programme for Rural Banks
SSS	Social Security System
STP	Straight-through-Processing
TA	Technical Assistance
TRS	Trust Rating System
USD	US Dollar
YoY	Year-on-year

References

Bank for International Settlements, (2010), "International Banking and Financial Market Developments", BIS Quarterly Review, March 2010.

Bangko Sentral ng Pilipinas, Financial Stability Report, June 2010.

————————, Updates on BSP Supervision and Regulation, March 2010.

————————, Report on Economic and Financial Developments, March 2010.

————————, Status Report on the Philippine Financial System for the Second Semester of 2009.

————————, Financial Stability Report, June 2008.

————————, Financial Stability Report, December 2007.

———————— (2003), "Perspectives from Bangko Sentral ng Pilipinas: Money & Banking in the Philippines", Manila, Bangko Sentral ng Pilipinas.

————————, Circular No. 628, 31 October 2008.

————————, Circular No. 626, 23 October 2008.

————————, Circular No. 594, 08 January 2008.

————————, Circular No. 545, 15 September 2006.

————————, Circular No. 544, 15 September 2006.

————————, Circular No. 523, 23 March 2006.

————————, Circular No. 511, 03 February 2006.

————————, Circular No. 510, 03 February 2006.

————————, Circular No. 439, 05 July 2004.

————————, Circular No. 273, 27 February 2001.

————————, Circular No. 271, 08 January 2001.

————————, Circular Letter No.CL-2008-075, 28 November 2008.

Bingham, G., (2010), "Central Bank Governance and Financial Stability", Remarks Delivered at the Spring 2010 CEMLA Meeting and Central Bank Governance Forum, 14 May 2010.

Borio, C., and Drehmann, M., (2009), "Towards an Operational Framework for Financial Stability: 'Fuzzy' Measurement and its Consequences", *BIS Working Paper* No. 284, June 2009.

Borio, C. et al, (2000), "Procyclicality of the Financial System and Financial Stability: Issues and Policy Options", *BIS Paper* No. 1.

Calomiris, C.W., et al, (2004), "A Taxonomy of Financial Crisis Resolution Mechanisms: Cross Country Experience", *World Bank Policy Research Working Paper* No. 3379, August 2004.

Carson, C. and Ingves, S., (2003), "Financial Soundness Indicators – Background Paper", International Monetary Fund.

Caruana, J., (2010), "Macro Prudential Policy: What We Have Learned and Where We are Going?", Keynote speech at the Second Financial Stability Conference of the International Journal of Central Banking, Bank of Spain, Madrid.

Čihák, M., (2007), "Introduction to Applied Stress Testing", *IMF Working Paper Series* No. 59.

Cole, R.A. and Gunther, J.W., (1995a), "A CAMEL Rating's Shelf Life", Financial Industry Studies, Federal Reserve Bank of Dallas, pp.13-20.

Cole, R.A. and Gunther, J.W., (1995b), "Separating the Likelihood and Timing of Bank Failure", *Journal of Banking and Finance*, Vol. 19, No. 6, September 1995, pp. 1073-1089.

Cooperative Code of the Philippines or Republic Act No. 6938. Viewed at: <http://www.bcphilippineslawyers.com/republic-act-no-6938>

Crocket, A., (2000), "Marrying the Micro- and Macro-prudential Dimensions of Financial Stability", *BIS Review* No. 76.

Council on Foreign Relation's Center for Geoeconomic Studies, (2009), "An Expedited Resolution Mechanism for Distressed Financial Firms: Regulatory Hybrid Securities", Squam Lake Working Group on Financial Regulation Working Paper, April 2009.

Department of Finance (DOF) website <http://www.dof.gov.ph>

Evans, O., et al, (2000), "Macro prudential Indicators of Financial System Soundness, *IMF Occasional Paper* 00/192.

Flannery, M.J., (2005), "No Pain, No Gain? Effecting Market Discipline via Reverse Convertible Debentures", in Hal S. Scott (ed.), Capital Adequacy Beyond Basel: Banking, Securities and Insurance, Oxford: Oxford University Press

Foreign Banks Law or Republic Act No. 7721. Viewed at: <http://www.bsp.gov.ph/downloads/laws/RA7721.pdf>

Goodhart, C.A.E., (2010), "Banks and Public Sector Authorities: The International Financial Crisis and Policy Challenges in Asia-Pacific", *BIS Paper* No. 52, July 2010.

Gonzales, C., (2008:393-394), "Capital Flows and Financial Assets in the Philippines: Determinants and Challenges for the Central Bank", *BIS Paper* No. 44.

Gonzales, J.E., (2009), "The Fundamentals of Procyclicality of the Financial System", BSP Economic Newsletter No. 09-03, July 2009.

Hannoun, H., (2010), "Towards a Global Financial Stability Framework", Speech delivered at the 45th SEACEN Governors' Meeting in Siem Reap, Cambodia, 26-27 February 2010.

Hillbers, P.; Krueger, R.; and Moretti, M., (2000), "New Tools for Assessing Financial System Soundness", Finance & Development, September 2000.

Huang, H. and Wajid, S.K., (2002), "Financial Stability in the World of Global Finance", *Finance & Development*, March 2002, Vol. 39, No. 1.

Hubbard, R.G., (1997), "Money, the Financial System and the Economy", Boston: Addision-Wesley Longman, Inc.

International Monetary Fund, (2010), "Philippines: Financial System Stability Assessment Update", April 2010.

Laviola, S., (1998), "Banks' Early Warning Systems: A Review of Recent Literature", Background Paper to ECB Report SUP/98/35.

Lindgren, C., et al., (1999), "Financial Sector Crisis and Restructuring: Lessons from Asia", IMF Occasional Paper No. 188, Washington: International Monetary Fund.

Mishkin, F., and Eakins, S.G., (2006), "Financial Markets and Institutions", (5th ed.), New York: Pearson's International.

Mishkin, F., (1991), "Asymmetric Information and Financial Crises: A Historical Perspective" in R. Glenn Hubbard (ed.), *Financial Markets and Financial Crises*, Chicago: Chicago University Press, pp. 69-108.

Philippine General Banking Law of 2000 or Republic Act No. 8791. Viewed at: <http://www.bsp.gov.ph/regulations/laws.asp>

Philippine Stock Exchange <http://www.pse.org.ph>

Rural Act of 1992 or Republic Act No. 7353. Viewed at: <http://www.bsp.gov.ph/regulations/laws_rb.asp>

Sahajwala, R. and Van den Bergh, P., (2000). "Supervisory Risk Assessment and Early Warning Systems", *BCBS Working Paper* No. 4.

Santoso, W., (2010), "The Role of Central Bank in Maintaining Financial System Stability", Presentation delivered at the First SEACEN Workshop on Addressing Risks in Promoting Financial Stability, 01 July 2010.

Schinasi, G.J., (2005), "Safeguarding Financial Stability: Theory and Practice", Washington: International Monetary Fund, pp. 155-161.

Tan, E., (1981), "The Structure and Growth of the Philippine Financial Market and the Behavior of its Major Components", PIDS Working Paper No. 81-06. Manila: Philippine Institute for Development Studies.

The Charter of the Al-Amanah Islamic Investment Bank of the Philippines or Republic Act No. 6848. Viewed at: < http://www.lawphil.net/statutes/repacts/ra1990/ra_6848_1990.html>

Thrift Banks Act of 1995 or Republic Act No. 7906. Viewed at: <http://www.bsp.gov.ph/downloads/laws/RA7906.pdf>

Whalen, G., (1991), "Proportional Hazards Model of Bank Failure: An Examination of Its Usefulness as an Early Warning Tool", Federal Reserve Bank of Cleveland Economic Review, Quarter 1, pp. 9-20.

Chapter 7

ADDRESSING RISKS IN PROMOTING FINANCIAL STABILITY

by
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1. Introduction

The term "financial system stability" does not have any international definition. Multiple definitions are in use. In general, financial system stability can be described as the ability of the financial system to perform its key functions of mobilising savings and allocating them to productive investments, managing risks and settling payments, effectively, even in the event of shocks and stressful circumstances. The stability of the financial system depends largely on the resilience of the principal components of the financial system, which include the financial institutions, financial markets and infrastructure, individually and collectively, to absorb any adverse systemic disturbances (CBSL, 2009).

Financial system stability is important for four reasons. Firstly, a stable financial system creates a trusting and enabling environment conducive for savings and investments. Secondly, it facilitates the transmission of monetary policy, thereby contributing towards the attainment of the price stability objective. Thirdly, a stable financial system encourages efficient financial intermediation, which eventually stimulates investment and growth. Finally, a stable financial system encourages the effective and efficient operation of markets and improves the distribution of resources in the economy.

Financial system stability is evidenced by and reflected through a stable macro economy, well-managed financial institutions and markets, sound framework of prudential supervision and safe and reliable payments system. The macroeconomic environment, both international and domestic, could affect financial institutions, their clients and the entire financial system as a whole. Although there could be a large number of financial institutions, the health of the financial institutions may get disturbed by the failure of a few major players

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or due to failures in systemically important financial institutions. Intense asset price volatility or the collapse of market liquidity will ultimately lead to a disruption in the payment and settlement system. Such instabilities have a greater potential for affecting the real sector through macroeconomic costs. Regulation and supervision of the financial sector plays a vital role in preventing such circumstances. Financial sector supervision follows a micro-prudential perspective of examining each financial institution's performance and health to safeguard the interests of depositors and to promote the soundness of financial institutions.

If the financial system is not stable, customers will not be confident to engage in money transactions because some financial institutions may fail to repay their deposits, disburse loans or remit the payments to due parties locally and abroad. Through such an event, our day-to-day life will be affected and the economy as a whole will suffer. In a situation where depositors have lost their confidence in banks and other financial institutions, the financial system stability will be threatened, and it will severely affect the smooth functioning of the entire economy.

1.1 Causes of Financial System Instability

Widespread failure of banks and financial institutions is the common feature of financial crises. Banks like any other business are also one of the immediate causes of the recent financial crises. There were sudden outflows of foreign capital invested in certain countries, which resulted in a shortage of funds in banks, leading to bank failures. Economic downturn in a country will lead to a high default rate of borrowers of financial institutions. The risk management of banks and financial institutions needs to be improved to enable them to cover themselves against the adverse outcome of economic downturn. Policy makers have an important role to play here. In most cases instability results from a combination of market failures caused by structural factors and/or market players. It has been observed that the recently introduced innovative financial products have created added complexity to the financial system stability.

Understanding the financial stability framework of a country is important for the formulation of the appropriate policies to address the financial system issues. These policies mainly relate to regulations, supervision of banks and financial institutions, payments and settlement system, and implementation of financial reforms. Since most of the central banks have power to regulate and supervise the financial institutions, it is incumbent upon the central banks to put in place crisis management policies, including a safety net mechanism and

contingency plans, as well as take preventive and corrective actions against a potential crisis.

1.2 Objectives and Importance of the Study

Knowledge gained from this study will help us to understand the stability framework of the country and facilitate formulation of the appropriate policies towards strengthening financial system stability. Additionally, it will help us to evaluate the level of development of each component of the financial system and identify the areas that have to be developed and strengthened, with a view to preserving or enhancing financial stability. This study would also serve to increase the awareness of policymakers.

2. Financial Stability in Sri Lanka

2.1 Current Conditions

Sri Lanka, like many emerging markets, remained resilient through the period of the recent financial crisis. Its financial system was not subjected to any significant stress due to the low integration level of its financial sector to the global financial markets and prudent policies adopted by the country's financial authorities. However, in early 2009, the global financial turmoil deepened and the global economy started to contract, causing the financial markets to be somewhat volatile. In response to these adverse developments, there was an outflow of foreign investment in government securities and it created a liquidity shortage in the money market in early 2009. This situation has corrected as the financial markets became more liquid in the second half of the year due to declining inflationary pressures, easing of monetary policy, resumption of capital inflows and improved investor confidence.

The assets of the domestic banking institutions, which account for about two thirds of the total assets of the financial system, maintained their soundness with adequate levels of earnings and improved risk management systems, within a strong regulatory framework. However, there was a decline in the demand for credit mainly because of the slowdown in economic activities and the cautious approach taken by banks in lending in light of increasing non-performing loans.

Seylan Bank PLC, a systemically important institution, experienced liquidity problems due to a failure in 2009 of an unregistered credit card company to which it was affiliated. The Seylan Bank PLC was recapitalised by the issuance of new shares and business operations presently have returned to normal.

The finance and leasing sector, which serves the risky segment of customers who have less access to loans from banks, experienced losses due to the failure of some entities engaged in unauthorised financial business. The Central Bank of Sri Lanka (CBSL) and the Ministry of Finance intervened to assist the distressed finance and leasing companies and were able to rebuild confidence in the sector. The CBSL initiated a number of measures such as the appointment of managing agents to provide a panel of professional services to advice and guide the recovery process, introduction of a stimulus package to assist troubled registered finance companies that were facing liquidity problems, and introduction of a credit guarantee scheme for bank loan facilities granted to registered finance companies and specialised leasing companies.

The key determinant of a robust financial system is a sound layout of system infrastructure. The payment and settlement systems of Sri Lanka experienced a fast paced development with the implementation of the modernisation project of the Central Bank of Sri Lanka in 2001. Under this modernisation project, a number of reforms have taken place. These reforms have been supported by the enactment of the Payment and Settlement System Act No.28 of 2005. There are two systemically important payment systems in Sri Lanka, namely, the Lanka Settle System operated by the CBSL and the Cheque Imaging and Truncation (CIT) system operated by the LankaClear (Pvt.) Ltd. (LCPL). Introduction of the Lanka Settle System in 2003 was a landmark in the development of the payment and settlement system in the country. Under this development, two well-integrated systems namely, Real Time Gross Settlement (RTGS) system for high value payments on real time gross basis and LankaSecure system which settles securities transactions on Delivery versus Payment (DvP) basis were initiated. The RTGS system accounts for more than 85% of the total value of non-cash payments and it is the main inter-bank fund transfer system in the country. The total value of scripless securities held by LankaSecure, accounts for more than 99% of the total value of Treasury bills and Treasury bonds outstanding. The CIT system was introduced in 2006 with the objective of increasing efficiency of cheque clearing, by reducing the island-wide cheque realisation duration from 10 days to 1 day. The CBSL monitors the progress of the system continuously. The LCPL operates the Sri Lanka Inter-Bank Payment System (SLIPS), which is a major offline inter-bank retail payment system where electronic instructions are issued to effect the payments. Currently, both payment systems operate with a high degree of availability and accuracy.

The Central Bank continues the supervision of business continuity plans and the Disaster Recovery Sites (DRS) of the participating institutions of the high value payment system and also extended the regulatory and supervisory

framework to promote the soundness and security of the retail level electronic fund transfers.

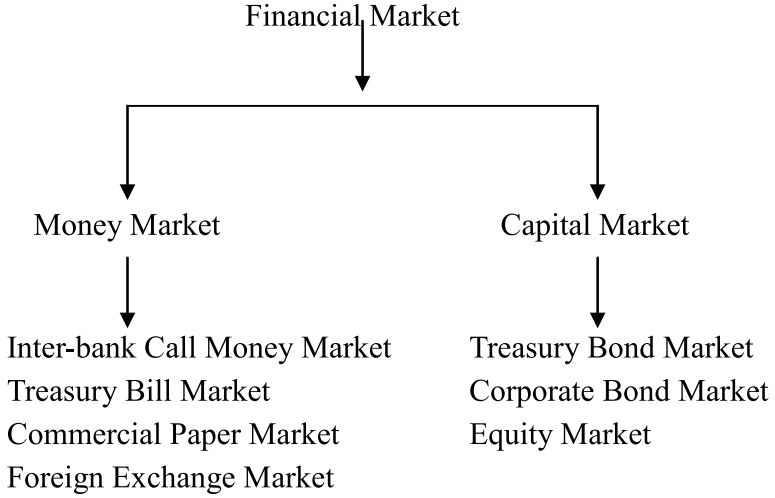
2.2 Organisation and Institutions

2.2.1 Organisation Structure of Financial Markets

Financial markets are vital for the efficient allocation of financial resources and for diversifying risks in the economy. Developments in financial markets have an impact on earnings of financial institutions and the cost of mobilising funds.

The financial market in Sri Lanka consists of the money market and capital market. The money market deals with short-term funds while the capital market facilitates the raising of longer-term funds. The main segments of the Sri Lankan money market are the inter-bank call money market, treasury bill market, commercial paper market and foreign exchange market. The capital market consists of treasury bond market, corporate bond market and equity market.

Diagram 2.1
Structure of Financial Markets



The inter-bank call money market is an overnight market and mainly serves commercial banks in meeting their immediate liquidity needs and reserve deficiencies. Hence, an important task of the call money market is to facilitate liquidity management in the economy. Therefore, the orderly and stable functioning of the inter-bank call money market is important to minimise liquidity risk in the banking system as a whole. The stability of the market is supported by the provision of Repurchase (Repo) and Reverse Repurchase (Reverse Repo) facilities provided by the Central Bank at its policy interest rates. The Central Bank's policy interest rates, Repo rate and Reverse Repo rate, form an interest rate corridor for the inter-bank call money market rate, with Repo rate being the lower limit and the Reverse Repo rate being the upper limit. This reduces potential large fluctuations in the short-term market interest rates.

The Central Bank reduced its policy interest rates several times in 2009. The current annual Repurchase rate is 7.25% and Reverse Repurchase rate is 9%. The inter-bank call money market is the first step in the transmission of the Central Bank's monetary policy signals to the economy. Hence, the Central Bank closely monitors the inter-bank market and makes a daily assessment of the liquidity in the banking system. Under the current open market operations, the Central Bank will conduct either a Repo or Reverse Repo auction for a determined amount, to control large fluctuations in the inter-bank call money market interest rates. If there is excess liquidity in the market, the Central Bank will conduct a Repo auction to mop up the surplus money. Likewise, if there is a shortage of liquidity in the market, the Central Bank will conduct a Reverse Repo auction to inject money into the market. The magnitude of the Central Bank intervention depends on the overall liquidity excess or shortfall. At present, the banking system of the country does have high surplus liquidity. Therefore, the liquidity position of all banks is maintained at a comfortable level. The Call money rates have been relatively stable, with an Average Weighted Call Money Rate (AWCMR) moving within a range of 8.3% to 9.4% and averaging at 9.0% in the first half of 2010. During the first half of 2010, the volume of daily gross inter-bank call money transactions was relatively low, reflecting the availability of excess funds among the participants.

The treasury bill market is another segment of the money market. Treasury bills are highly liquid money market instruments that provide financial institutions with an alternative source of liquidity and investment. Furthermore, interest rate movements in the treasury bill market provide a benchmark for the short-term credit market. Hence, changes in volumes and rates in the treasury bill market affect the cost, as well as the profitability and liquidity of financial institutions. The Central Bank injects liquidity by purchasing treasury bills in the primary

market as well as the secondary market to address the shortfall in rupee liquidity in the domestic money market. Secondary market transactions in treasury bills amounted to Rs. 589 billion for outright transactions and Rs. 6463 billion for repurchase transactions during the first six months of 2010. Yield rates in the treasury bill market have been relatively stable in the range of 7.7% to 9.55% for maturity period of 3 months to 1 year in the first half of the year 2010.

A main purpose of the foreign exchange market is to obtain foreign currency funds to pay for imported goods and services and to service foreign loan repayments. The foreign exchange market consists of spot and forward markets. The foreign exchange market in Sri Lanka consists of two tiers, the client or retail market and the inter-bank or wholesale market. The transactions in the inter-bank market partly result from transactions that banks have had with their customers in the retail market. The inter-bank market is mainly organised among Authorised Dealers in the foreign exchange market, which include all the licensed commercial banks and plays an important role in the Sri Lankan financial system by redistributing liquidity within the banking system. The main risk to the financial system from the foreign exchange market is the impact of excessive volatility in the exchange rate on the net open positions in foreign exchange of commercial banks.

In the inter-bank foreign exchange market, transactions are conducted on spot, tom, cash or forward basis between the US$ and Sri Lanka Rupee. The daily inter-bank spot, tom and cash transactions averaged to US$44 million during the first half of 2010 compared to US$47 million during the corresponding period in 2009. The daily forward transactions averaged to US$1,562 million in the first half of 2010 compared with US$2,217 million recorded in the first half of 2009. The role of the Central Bank in the inter-bank foreign exchange market is to maintain an “orderly” market and it fulfills its role by intervening in the market when necessary, to reduce excessive volatility in exchange rate fluctuations.

As the floating exchange rate system was adopted in January 2001, market forces of demand and supply determine the price of the Sri Lanka Rupee, in terms of foreign currencies. The US$ / SL Rupee exchange rate is determined in the inter-bank foreign exchange market. The rupee has appreciated by 0.7% against the US dollar in the first half of 2010 due to the rise of foreign investment inflows through investments in treasury bills and treasury bonds. The Central Bank has been a net purchaser in the domestic foreign exchange market with a net absorption of US$197 million in the first 6 months of 2010.

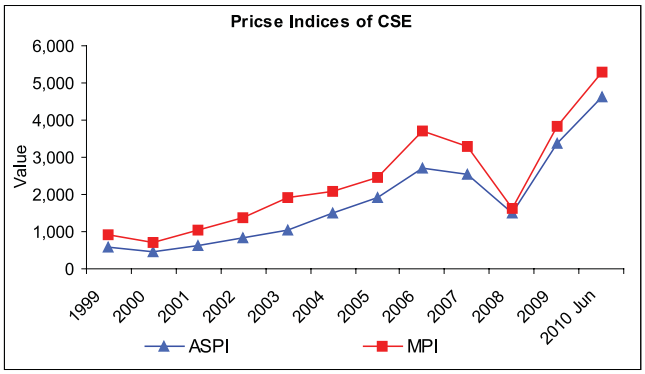
Commercial paper is a short-term unsecured money market instrument issued by companies to raise funds for their own use, with or without the support of commercial banks as guarantors. The commercial paper market is very small compared to the treasury bill market in Sri Lanka. The total value of commercial paper issued with the support of banks amounted to Rs.5.3 billion during the first 5 months of 2010. The interest rates varied between 9% and 14%.

The interest rate in the treasury bond market has shown a downward movement during 2009 in line with the reduction in treasury bill interest rates and recorded a rate in the range of 9.5% – 12.5% in the secondary market during 2010.

Corporate bonds are medium- or long-term interest bearing securities issued by companies. Corporate bonds that are not backed by a specific asset are called debentures. During the first seven months of 2010, one commercial bank issued debentures, which raised Rs. 5 billion on face-value basis. The corporate bond market in Sri Lanka is very small and underdeveloped at present. The decline in interest rates and the economic recovery are likely to create a conducive environment for the development of the corporate debt market in the future.

Equity trading is taking place in the Colombo Stock Exchange (CSE). There are 235 companies currently being listed on the CSE. The market capitalisation of the stock market has increased from about 8% of GDP in 2001 to 19.9% in 2009. The All Share Price Index (ASPI) increased by more than 35% in the first half of 2010. Net capital outflows from the stock market amounted to Rs.15.8 billion for January to 24 June 2010 compared with a net capital outflow of Rs.790 million for 2009.

Figure 1 (Chart 2.1)
Colombo Stock Exchange Indices

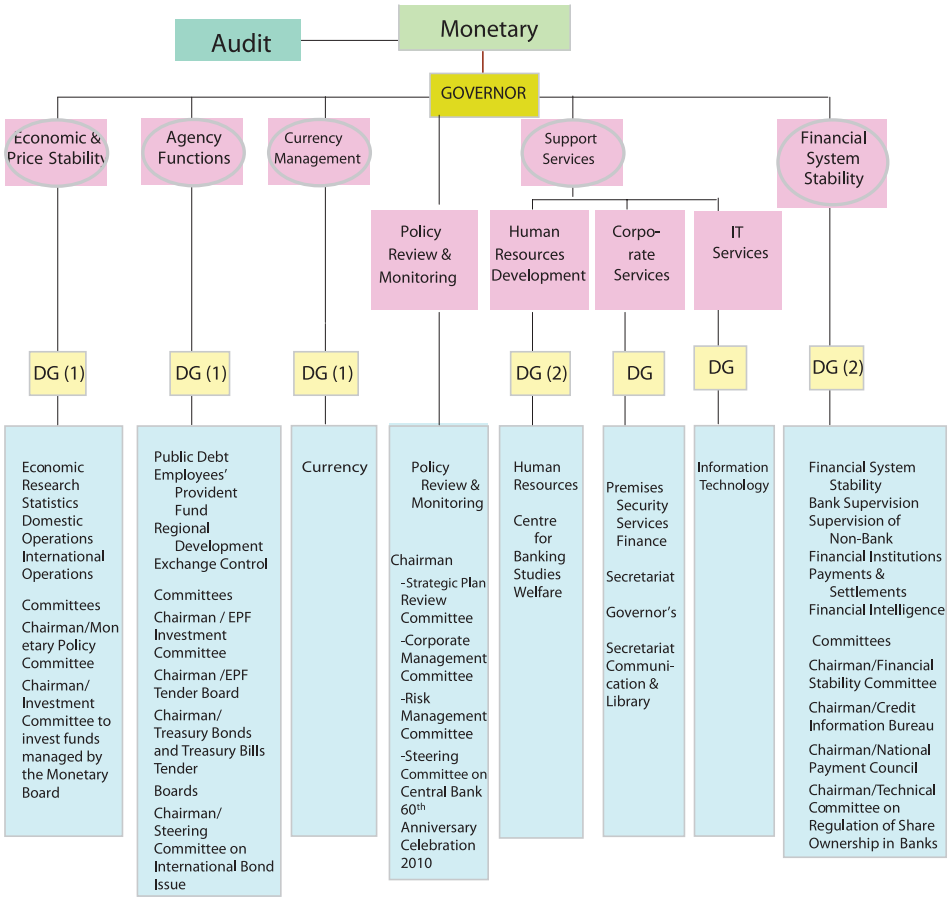


2.2.2 Organisation of the Central Bank

In keeping in line with the trends in central banking, the Monetary Law Act (MLA) was amended in 2002, specifying two core objectives, i.e., maintaining economic and price stability and maintaining financial system stability, which streamlined the objectives of the Central Bank. In addition to the core objectives, the CBSL acts as an economic adviser, a banker to banks, and an agent to the Government of Sri Lanka. The Central Bank of Sri Lanka also undertakes ancillary functions, for example, currency issue and management and a couple of agency functions, such as Employees' Provident Fund management, foreign exchange management, public debt management, and regional development.

The Monetary Board of the CBSL, which consists of four members, is responsible for making all the policy decisions related to the management, operation and administration of the Central Bank. The departments of the Central Bank are grouped into five key business areas, such as Economic and Price Stability, Financial System Stability, Currency Issue and Management, Agency Services to Government and Support Services. The department heads report to the Governor through a Deputy Governor (DG) or an Assistant Governor (AG) Figure 2. There are five departments in the financial system stability cluster, namely, Bank Supervision, Supervision of Non-Bank Financial Institutions, Financial System Stability, Financial Intelligence Unit, and Payments and Settlement.

Figure 2
Central Bank of Sri Lanka – Organisational Structure



2.2.3 Committees

The Financial System Stability Committee (FSSC) was set up in 2002 when financial system stability became one of the core objectives of the Central Bank. It was established to co-ordinate the efforts for ensuring that the overall system is robust and secure and the threats to the system are identified and reduced. The main tasks of the FSSC are to: (i) assess the risks and vulnerabilities that may lead to financial system instabilities or imbalances and to recommend measures and policies to mitigate them to the Governor and the Monetary Board: (ii) monitor the financial system and submit periodic reports to the Governor and the Monetary Board; and (iii) recommend policies necessary to promote financial system stability and prepare the Financial System Stability Review report.

The FSSC is chaired by the Deputy Governor in charge of Financial System Stability and includes the Assistant Governor in charge of Financial System Stability, Assistant Governor in charge of Price Stability, and other department heads appointed by the Governor. At present, the FSSC consists of 18 members.

The Financial System Stability Consultative Committee (FSSCC) was established in January 2008 to obtain the views and advice of persons outside the Central Bank having expertise in financial sector matters, in formulation of policies on financial system stability. At present, the FSSCC consists of 10 members.

The National Payment Council (NPC) was established by the CBSL in February 2006, which is the highest decision making body with regard to the payment system in Sri Lanka. The NPC comprises representatives of all major stakeholders of the PSS, namely, the CBSL, Licensed Commercial Banks, Licensed Specialised Banks, Lanka Clear (Pvt.) Ltd., Colombo Stock Exchange, Ministry of Finance, and the Sri Lanka Bankers Association.

The CBSL conducts monthly meetings chaired by the Governor with the CEOs of Licensed Commercial and Specialised Banks, which serves as a forum for the exchange of views on issues and policies relating to banking operations and the financial sector.

2.2.4 Human Resources, Information Technology and Infrastructure

The total number of staff of CBSL as of April 2010 was 1250, of which 274 officers hold at least a university first degree while 288 officers hold a university first degree and a professional qualification / postgraduate qualification. There are 107 staff officers and 32 non-staff officers serving in the five departments of the Financial System Stability cluster. The Information Technology Department consists of 22 staff officers and 15 non-staff officers. Every officer in the Central Bank is provided with a personal computer.

2.3 Regulation and International Compliance

Central Bank provides lending facility as the Lender of Last Resort (LOLR). Pursuant to Section 86 of the Monetary Law Act, banking institutions may use the provision of LOLR in a period of an emergency or in the event of an imminent financial panic situation which directly threaten monetary and banking stability. The CBSL may grant loans secured on any asset which is defined as acceptable

for the purpose by the Monetary Board by an unanimous decision. At present, only Licensed Commercial Banks are considered as banking institutions. Having realised the importance of deposit insurance (DI), the CBSL issued a regulation to make DI mandatory for banks and non-bank financial institutions from October, 2010 onwards. It is also intended that the premium collected for the DI to be used to grant loans to members as liquidity support. The CBSL recently formulated a bank crisis resolution plan in keeping with the provisions of the existing legislation for banks to provide for prompt and effective resolution of a bank in a distressed situation with a minimum impact to the stakeholders of such banks, including the general public. According to the resolution plan, several options are provided for dealing with both imminent bank failures and actual bank failures under the MLA and the Banking Act (BA). Those options are: suspension of business of the bank, suspension or restriction of business of a licensed commercial bank, rehabilitation, cease-and-desist order and vesting the business carried out by the defaulting bank in another licensed commercial bank (Acquiring bank) which consents to such vesting. This framework was activated through Seylan Bank PLC (SBP), the fifth largest commercial bank in the country, which was showing signs of distress due to failure of the Golden Key Credit Card Company, a subsidiary of SBP. The Monetary Board of the Central Bank took immediate measures under Section 30(9) of the MLA, No.58 of 1949, to discontinue the services of all directors of SBP whilst appointing an independent board to carry on business operations of the bank. At the same time, the Bank of Ceylon, the largest state bank was requested to extend its managerial assistance to SBP. The CBSL provided the required rupee liquidity to SBP under the reverse repo window. In order to address the shortfall in foreign currency liquidity, collateralised borrowings from the CBSL, the Bank of Ceylon, other counter parties and SWAP transactions were arranged. With the objective of further strengthening the capital, management and operations of the bank, in terms of the powers vested under the Monetary Law Act, CBSL initiated appropriate steps to restructure the bank by seeking a strategic investor. The CBSL found that the short-listed strategic investor had not fulfilled the requirements set by the CBSL, in relation to the ownership limits and decided to direct SBP to issue shares to raise the required capital. The SBP is currently carrying out operations independently.

2.3.1 Regulation and Supervision of Banks

The Banking Act No.30 of 1988 provides the legislative framework for the licensing of banks and regulation and supervision of licensed commercial banks and licensed specialised banks. The Act was amended in 1990, 1995, 2005 and 2006 to strengthen the supervisory framework of the banks. The CBSL grants

approval for the establishment and closing of banks, branches and other business outlets of banks and issuance of prudential directions, determinations and orders to banks. It also conducts off-site and on-site examination of banks, enforcement of regulatory actions and provides resolutions to weak banks. The regulatory and supervisory function relating to licensed banks is carried out by the Bank Supervision Department of the Central Bank. The supervision of banks is based on internationally accepted standards for bank supervision set out by the Basel Committee for Banking Supervision. Under the off-site surveillance system, the financial condition of Licensed Commercial Banks and Licensed Specialised Banks is monitored on the basis of periodic information provided by banks on their operations. The periodic information includes weekly interest rates of deposits and advances, monthly returns on selected financial information, assets and liabilities, statutory liquid assets, quarterly returns on income and expenditure, capital adequacy, non-performing advances, classified advances and provisioning for bad and doubtful advances, investments in shares, accommodation granted to bank directors, their close relations and concerns in which a director has a substantial interest, interest spreads, semi-annual return on share ownership of banks and annual audited financial statements. It has been now proposed to introduce further amendments to the Banking Act in line with best practices and standards adopted both locally and internationally.[2]

2.3.2 Regulation and Supervision of Finance Companies

The regulation and supervision of Registered Finance Companies is governed by the Finance Companies Act (FCA) by the Department of Supervision of Non-Bank Financial Institutions of the Central Bank with the objective of ensuring that these institutions comply with the minimum prudential requirements stipulated by the Central Bank. The Central Bank also conducts investigations into the affairs of institutions, which are allegedly engaged in finance business, without legal authority. The FCA, which was enacted in 1988, has been amended only in 1991. It has been proposed that a new act, namely, the Finance Business Act be promulgated in order to update the law to cover new developments in

2. The proposed amendments to the Banking Act will specify prerequisites and procedure for consolidation and mergers of banks; expanding the criteria to determine "material interest"; strengthening bank resolution measures including powers and role of the managing agent; expanding provisions on offences and penalties; broad basing the definition of deposits; implementing the provision in the Basel II capital adequacy framework; undertaking consolidated supervision and extending regular requirements applicable to Licensed Commercial Banks and Licensed Specialised Banks, aligning with the provisions in the Act; and disclosing financial statements to the public.

technology and practices, combat unauthorised deposit-taking activities and effectively stabilise the financial sector in the wake of new challengers.[3]

2.3.3 Regulation and Supervision of Finance Leasing Companies

In terms of the Finance Leasing Act, a certificate of registration is necessary to conduct finance leasing business. The Department of Supervision of Non-Bank Financial Institutions of the Central Bank registers, regulates and monitors finance leasing establishments the law. Directives relating to prudential requirements have been issued which cover minimum capital, provision for bad and doubtful debts, single borrower limit, gearing ratio, treatment of accrued interest, reserve fund, financial statements, corporate and operational information.

2.3.4 Regulation and Supervision of Primary Dealers

The regulatory and supervisory framework for Primary Dealers in government securities is specified by regulations issued under the Local Treasury Bills Ordinance and the Registered Stocks and Securities Ordinance. The Central Bank is empowered to regulate and supervise Primary Dealers, which entails the appointment of Authorised Primary Dealers, the issuing of prudential directions and determinations under the laws, the off-site and on-site examination of Primary Dealers and the enforcement of regulatory actions, including the suspension and cancellation of the appointment of Primary Dealers on non-compliance with the laws.

2.3.5 Securities and Exchange Commission (SEC)

The Securities and Exchange Commission (SEC) is responsible for the licensing and regulation of stock exchanges, stockbrokers, stock dealers and unit trust companies, pursuant to the Securities and Exchange Commission of Lanka Act No. 36 of 1987**.** The SEC also registers underwriters, margin providers, credit rating agencies, investment managers and securities clearing houses. In

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3. Major revisions proposed to the FCA are acceptance of deposits without authority is made an offence; definition of "deposit" is introduced, examination / investigation powers enhanced; enhanced powers to curb unauthorised finance/deposits taking business; restricting/prohibiting the use of certain words like finance, financing and financial in a name or description of an entity; enhancing supervision action on RFCs; and empowering the Monetary Board to establish mandatory deposit insurance, improving the reporting requirements of licensed finance companies, revising the winding up process by including a list of priority claims, and enhancing the penalties under the Act.

order to co-ordinate financial stability issues, the Central Bank is a member of the Board of Directors of the SEC and the Deputy Governor in charge of Financial System Stability represents the Central Bank on the SEC Board.

2.3.6 The Insurance Board of Sri Lanka (IBSL)

The Insurance Board of Sri Lanka (IBSL) regulates and supervises the insurance industry, insurance companies and their agents, and insurance brokers, under the Regulation of Insurance Industry Act No.43 of 2000 to safeguard the interests of policy holders. The Central Bank is a member of the IBSL and is represented on it by the Deputy Governor in charge of Financial System Stability.

2.3.7 International Compliance

The CBSL issued directives and guidelines to banks according to the Basel II risk management framework. The CBSL continues to ensure the adherence of the two systemically important payment systems to internationally accepted core principles forwarded by the Bank for International Settlements (BIS). Banks are expected to comply with the SLAS 44 and 45 from 2011 and the Bank Supervision Department has taken the necessary measures to facilitate the implementation of these accounting standards in a timely manner.

3. Risks

3.1 Maintaining Financial Stability (Daily Operations)

The CBSL conducts auctions to manage liquidity in the banking system. The CBSL implements this process through its Open Market Operations (OMO) which involves: (i) Auctions: Overnight Repo Transactions, Term Repo Transactions, Reverse Repo Transactions, Term Reverse Repo Transactions; (ii) Standing facilities: Repo transactions, Reverse Repo Transactions, Term Reverse Repo Transactions; (iii) Issue of Central Bank Securities; (iv) Outright transactions; and (v) Forex SWAP transactions. In recent times, the objective of the auctions has been to absorb the surplus liquidity in the banking system. In addition, the CBSL is also responsible for imposing the Statutory Reserve Requirement (SRR) as a monetary policy instrument. In recent times, the SRR for rupee deposits liabilities of banks was reduced on three occasions and since 25th February 2009 it is at 7.00%.

The risk management of the banking sector, Registered Finance Companies, Specialised Leasing Companies and Insurance Companies are mentioned below.

3.2 Banking Sector Risks

The banking sector dominates the financial sector, representing 68.2 % of the total assets of the major financial institutions (CBSL, AR, 2009). The banking sector comprises 22 licensed commercial banks (LCBs) and 14 licensed Specialised banks (LSBs) as at March 2010.

The Central Bank moved to adoption of the Pillar 1 minimum capital requirements under the Basel II[4] with effect from 1st January 2008. Accordingly, all the LCBs and LSBs are required to apply the standardised approach for credit risk, the standard measurement method for market risk and the basic indicator approach for operational risk in computing the capital requirements from 1st January 2008. Banks need to maintain a capital adequacy ratio of not less than 10% in relation to their total risk-weighted assets in accordance with Basel II's "International Convergence of Capital Measurement and Capital Standards: A Review Framework," recommended by the Basel Committee (CBSL, 2008).

3.2.1 Credit Risk

Credit risk is the risk that a counter party will not settle an obligation for its full value when it is due. Credit risk is the major risk in the banking sector as lending operations are the core functions of the banking business.

The non-performing loans (NPL) ratio of banks, which indicates the ratio of gross non-performing advances as a percentage of total loans and advances, is an important factor in identifying credit risk. The present general provision requirement is 1%. In order to mitigate the risk arising from higher NPL, banks are required to maintain a general provision of 0.5% of total outstanding performing loan advances on balance sheet and on some specific accounts commencing from 1st January 2012. For this purpose, banks are required to reduce the existing general provision requirement of 1% to 0.5% at a rate of

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4. Basel II; three approaches: (i) Minimum capital requirements; (ii) Supervisory review process; and (iii) Market discipline. Risk weights are given in BIS II accord. The standardised approach: A system of determining solvency requirements in which a bank standard risk assessment for customer types and product types. The standard measurement approach: Dictates a set of rules calculating the capital charge for different types of financial products available for trading. The basic indicator approach: This approach is a set of operational risk measurement techniques and must hold capital for operational risk equal to the average over the previous three years of a fixed percentage of positive annual gross income.

0.1% per quarter during the quarters commencing 1st October 2010. This measure has been taken to stimulate credit growth to the private sector. Additionally, banks are required to maintain minimum specific provisions of 25% for sub-standard, credit card and others, 50% for doubtful and 100% for loss categories of loans.

The sectoral distribution of credit in the banking sector is important as it reveals the concentration of credit. In order to restrain any adverse shocks to banks through possible vulnerabilities due to high credit exposures to large borrowers, the Central Bank has issued prudential directives and guidelines a couple of times on maximum amount of accommodation. The criteria adopted in this case are based on the capital base of the banks, the status of risk management of the banks, in terms of capital adequacy ratio of the banks and the external credit ratings of the borrower and the bank. The maximum amount of accommodation that may be granted by a licensed bank may not exceed 30% in respect of any single company, public corporation, firm, association of persons, or an individual. That maximum limit is 33% for the customers in respect of a company and one or more of its subsidiary, its holding company, its associate company, a subsidiary of its holding company or a company where such company or its subsidiary or its holding company or a subsidiary of its holding company has a substantial interest. These limits may be enhanced to 40% and 36% of accommodation in aggregate to customers depending on the assigned bank's credit ratings and bank's capital adequacy ratio (CBSL, Directions, 2008). Aggregate limit of large accommodation is limited to 55% of the total outstanding amount of accommodation granted by the commercial banks to all customers, excluding the government of Sri Lanka. However, banks are allowed to grant accommodation in excess of the maximum limits specified provided that the prior approval of the Monetary Board of the CBSL has been sought and obtained. In 2009, the Central Bank took several measures with a view of encouraging lending and improving the assets quality of the banks. This includes informing banks to reduce interest charge on customers in line with the policy measures taken by the Central Bank to facilitate a reduction in lending rates; requesting banks to grant concessions that were affected due to the set-back in global economic activities; advising banks to take appropriate measures to expand credit to the private sector, based on the evaluation of the credit risk of customers with a view to facilitate economic activities; and requiring banks to strengthen the recovery process and credit administration. The stress tests conducted to assess the impact of the rising trend in NPLs have shown that there will not be a material impact on the stability of the banking system (FSSR, CBSL, 2009).

Banks focused the credit risk management tools in their risk management framework, in order to reduce the impact of non-repayment of loans by customers. In this context, credit risk mitigating tools such as the level of loan loss provisions, and value and availability of collaterals, are vital in assessing the actual level of credit risk. All licensed commercial banks have been required to maintain a general provision of 1% of total performing loans and advances, and overdue loans and advances net of interest, in suspension. The requirements to maintain a general provision shall not apply in respect of loans and advances secured by cash deposits, gold, or government securities with the same bank. This general provision of advances is in addition to the non-performing loans and advances that have not been classified as sub-standard, doubtful or loss for provisioning purposes. The banks attempted to strengthen their credit risk mitigation measures to maintain the stability of the banking sector. Attention was paid to select borrowers with a proper evaluation to ensure that expansion of credit will not pose a further risk to the financial system stability.

3.2.2 Market Risk

Market risk is the risk of losses due to unfavourable movements in the market prices of the assets and liabilities of banks. These movements of market prices include the interest rate, exchange rate, and the prices of investments and trading securities.

The CBSL has requested all banks to classify their investment portfolio under two categories, i.e., the investment account and the trading account, and also to maintain two separate books of accounting for this purpose.

Licensed specialised banks are not allowed to invest in the equity of any institution other than a public company. Any share holding acquired shall not be in excess of 10% of its capital funds and aggregate amount invested in the shares of public companies shall not exceed 50% of capital funds. This helps to protect earnings of banks from declining stock returns and also excessive concentration.

Another source of market risk for banks is the risk arising due to movements in the exchange rates. Central Bank of Sri Lanka requires banks to strengthen their internal controls especially the limits on in order to mitigate risks[5].

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5. Central Bank also has imposed limits on both long and short net open positions, which is 15% of the capital base of each bank. Any losses that may be incurred by banks on their trading portfolio due to adverse fluctuations in market prices are covered by the capital charge for market risk.

However, the exposure of banks to market risk does not appear to create a significant impact on the banks which would in turn affect the stability of the banking sector.

3.2.3 Liquidity Risk

Liquidity is generally defined as the ability of a financial firm to meet its debt obligations without incurring unacceptably large losses. Thus, "funding liquidity risk" is the risk that a firm will not be able to meet its current and future cash flow and collateral levels, both expected and unexpected, without materially affecting its daily operations or overall financial condition. Financial firms are especially sensitive to funding liquidity risk since debt maturity transformation (for example, funding longer-term loans or asset purchases with shorter-term deposits or debt obligations) is one of their key business areas. The loss of public confidence and the resultant impact on the stability of the financial system due to contagion amply demonstrated that banks should strive to maintain an adequate liquidity cushion, as liquidity risks are inherent in the banking business. The banks are required to maintain a minimum statutory liquidity assets ratio (SLAR) of 20%.

The banks have to submit monthly returns for domestic banking units certifying the total liabilities and the volume of liquid assets required to be maintained. The required liquid assets should be maintained for a period commencing from the first working day of the month to the last working day of the calendar month following the month in which the base date occurs. Monthly statements of liquid assets for the off-shore banking units are also to be submitted in respect of each month comparable on the same basis as for the domestic banking units.

Despite the maintenance of SLAR at healthy levels, it is essential that banks also maintain the maturity gaps between their assets and liabilities at manageable levels.

3.2.4 Operational Risk

Operational risk is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems, or from external events (BIS, 2001). The exposure of the banking sector to operational risks is becoming more important with the increasingly complex and interconnected systems, financial products, and IT solutions. Currently, as per applicable capital standard, Basel II, a separate capital charge covers the operational risks of banks. CBSL issued

guidelines to banks to adopt the Basic Indicator Approach for computing regulatory capital for operational risk. In the present context, outsourcing is increasingly being used by the banking sector, which would affect the ability of the banks to manage the operational risk and monitor compliance with regulatory requirements.

Banks are required to pay special attention to strengthen Customer Due Diligence (CDD) and Know Your Customer (KYC) procedures to mitigate the risk arising through the use of the banking system by institutions and persons not authorised to accept deposits. The CBSL has also directed all banks and registered finance companies (RFCs) that they are not to open, operate or maintain an account where the holder of such account cannot be identified.

Currently, all licensed banks are required at all times to maintain a minimum capital adequacy ratio of not less than 10% in relation to total risk-weighted assets with core capital constituting not less than 5% in relation to total assets. In the interest of a strong and sound banking system, the CBSL has issued a directive to commercial banks to increase their capital on a staggered basis, as follows: Rs.3 billion by 31st December 2011, Rs.4 billion by 31st December 2012 and Rs. 5 billion by 31st December 2013. The proposed increased capital levels will enhance the resilience of banks to unexpected future shocks.

With a view of mitigating the risks arising from outsourcing of business operations of licensed commercial banks, the CBSL has issued guidelines for the banks. It says the outsourcing arrangements should be entered into only with external service providers who have specialised resources and skills to perform the related activities. LCBs are allowed to outsource operations other than acceptance of deposits, assets and liability management, compliance, CDD and KYC procedures, treasury functions, risk management, loan sanctioning and internal audit. The banks should report their position to the CBSL annually.

Some of the prudential measures taken by the Central Bank to ensure resilience of the banks include the implementation of Basel II capital adequacy framework, enhancement of risk-based supervision, and implementation of the directions on corporate governance of banks. One of the major lessons of the global financial crises is the importance of corporate governance in the banking industry. The Central Bank issued several prudential regulations on corporate governance and on risk management. Adherence to these regulations has enabled the Sri Lankan banking industry to face financial turmoil successfully (CBSL, 2009).

3.3 Registered Finance Companies (RFCs)

Registered finance companies (RFCs) represent 3.3% of the total assets of the major financial institutions (Annex 1). RFCs continued to provide a valuable contribution to the economy, especially in the areas of vehicle financing, by catering to a diverse and important customer base that does not have access to bank finance. Some stresses were experienced in the financial system, especially towards the latter part of 2008 due to the failure of an unauthorised finance business. As a result, public confidence in some of these institutions was eroded, creating an initial contagion effect, leading to a drop in new deposits as well as sudden heavy withdrawal of deposits causing liquidity constraints to several RFCs. The risk management practices in this sector are relatively weak and vary widely across the industry due to diverse reasons. RFCs began to address this issue mainly via improvements in management information systems, credit appraisal techniques and streamlining of recovery procedures.

3.3.1 Credit Risk

RFCs are exposed to credit risk as they mobilise deposits and lend those funds by way of finance leases, hire purchase facilities and direct loans. The ratio of non-performing loans (NPL) to total accommodations is considered as an indicator of credit risk in RFCs. The CBSL monitors the credit risk of RFCs by on-site and off-site surveillance. The RFCs are required to submit statements on classification of advances, secured large exposures, unsecured large exposures, advances to related parties and sector-wise credit exposures.

3.3.2 Liquidity Risk

The liquidity of the RFCs is monitored by the Central Bank on a monthly basis through its off-site surveillance. The RFCs have to maintain a minimum holding of liquid assets as defined in the Finance Company Act, at a minimum level of 10% of the outstanding value of the time deposits received by the finance company at the close of the business on such day and also a minimum 15% of the outstanding value of savings deposits accepted by such category, at the close of the business on such day.

3.3.3 Market Risk

The Central Bank issues directives on interest rates periodically. This helps the finance companies to prevent determining excessive interest which is harmful for the soundness of those institutions. According to the directive issued on 1st

January 2010, the maximum annual rate of interest which may be paid by the finance company on a time deposit accepted shall not exceed the weighted average yield applicable to 364-day Treasury Bills issued during the immediately preceding quarter, increased by 4 percentage point, if such deposit carries a maturity period of 12 months or less. It also shall not exceed by 5 percentage points if such deposit carries a maturity period of more than 12 months.

CBSL monitors the positions of investments in securities, maturity gap analysis and interest rate sensitivity in the RFCS to investigate the implications on the soundness of the sector.

3.4 Specialised Finance Leasing Companies

The specialised finance leasing companies (SLCs) sector contributes only 2% of the total assets of the major financial institutions (CBSL, AR, 2009). The CBSL does close monitoring of this sector through off-site surveillance and on-site examinations. SLCs are not permitted to accept deposits from the public. They depend mainly on funds raised through debt instruments. In recent times, SLCs were vulnerable to operational risks. Profitability of most RFCs declined as a result of the decline in interest income due to a number of reasons. SLCs finance long-term assets through mainly high interest rate borrowing. Interest rates are normally fixed for assets and liabilities and it affected the profitability of SLCs. Decrease in borrowings and withdrawal of investments made by investors through debt instruments caused funding constraints to SLCs. However, some RFCs in recent times managed to mitigate high interest rate cost to a certain extent by borrowing from the public through the issue of debt instruments.

3.5 Insurance Companies

The insurance sector is still small, accounting for about 3% of financial sector assets and 1.35% of GDP in terms of premium income. The insurance industry is highly concentrated with two large companies.

With a view to maintaining the soundness of the insurance companies, several actions have been taken by the Insurance Board of Sri Lanka (IBSL). It has increased the minimum paid-up capital of insurance companies to Rs.100 million in respect of each class of insurance business (IBSL, AR, 2009). The Board has also requested all insurance companies to obtain a rating of insurers' financial strength (IFS) indicating their ability to pay claims from a rating agency acceptable to the Board. Foreign equity participation in insurance companies has been permitted up to 100% in terms of the Gazette Notification No.1232.

In order to facilitate the stability of the industry, the IBSL has strengthened its supervisory review in respect of insurance companies. All insurers are required to submit their annual statutory returns and audited financial statements to the Board within six months following the end of the financial year. Further, in terms of the provisions of the Insurance Act, insurers engaged in long-term insurance business are required to submit an actuarial report and an abstract. The IBSL ensures timely submission of returns and reviewed them for their accuracy and compliance with relevant rules and regulations of the Act. Deviations from statutory requirements, if any, are referred to the companies concerned for corrective actions within a given period. Further, concerns identified from the examination of the annual statutory returns, audited accounts and actuarial reports are addressed at meetings and/or during on-site inspections.

In addition to that, all insurance companies are required to submit their quarterly returns within 45 days of the end of every quarter. In order to obtain a general overview of the performance of each insurance company and to ascertain the class-wise performance within the industry based on premium income, the Board scrutinises the details relating to premium income, reinsurance, other costs, investments, etc., reported in the quarterly returns.

The IBSL closely monitors solvency margins of both the life insurance and general insurance sectors. Therefore, the insurance companies are required to submit quarterly solvency margin computations along with their quarterly returns. These computations are reviewed to confirm compliance with the rules issued by the Board. If any company does not satisfy the minimum solvency margin requirement, it is instructed to take corrective action immediately.

In terms of the Insurance Act, not less than 20% of the assets of technical reserves or general reserves for general insurance business, and not less than 30% of the assets of long-term insurance fund for long-term insurance business, should be held by insurers in the form of government securities. All investments of all insurers are closely monitored by the IBSL to confirm compliance with the above rule. All insurance companies are required to submit a statement of holdings issued by the Central Bank of Sri Lanka, detailing their investments in government securities at the end of each quarter (IBSL, AR, 2009). The statutory requirement for an insurance company to invest in government securities will expose these companies to market risk in a declining interest rate environment.

All insurance companies are required to submit statements of reinsurance arrangements and cover notes to the Board annually. The Board evaluates these in order to ensure that the interests of policy holders and insurers are adequately

protected by covers obtained from re-insurers who satisfy the guidelines issued by the Board.

Most insurance companies offset their underwriting losses on general insurance business with investment income, which increased significantly due to high interest rates. In view of the current declining interest rate scenario, low interest rates could impact adversely on the investment income of insurance companies.

The main indicator to measure the soundness of insurance companies is the solvency margin which reflects the company's ability to meet the obligations arising from its insurance contracts. Most of the insurance companies met the solvency margin requirement for life insurance business. Even though the economic slowdown in the recent past adversely affected the growth of the insurance sector, all insurance companies managed to comply with the solvency margin requirements for both general and long-term insurance. They maintain a proportion of their reserves in government securities, thereby mitigating risks. The war risk premium for Sri Lanka was removed in June 2010, which had a positive impact on insurance companies through a reduction in reinsurance premium, thereby improving profitability. The IBSL has initiated action to move to a risk-based capital adequacy framework.

3.6 Financial Safety Net and Resolution

3.6.1 Lender of Last Resort

In situations of emergency or imminent systemic banking or financial crisis, the Central Bank provides loans against accepted collateral, to illiquid but solvent banking institutions.

3.6.2 Resolution Plans: Banks

The CBSL has prepared a resolution plan for banks. When the Seylan Bank was rescued, the same resolution plan was followed. Identification of a bank failure is determined after an assessment of the financial condition based on the following quantitative and qualitative trigger points:

- Gradual decline in deposits and cash balances – unusually large withdrawals of rupee or foreign currency deposits > 5% and Cash > 2% in a week, respectively.
- Statutory liquid assets ratio decreases to 15%.

- Non-Performing Loans ratio increases to 20% and further deterioration in the ratio to 25% or more.
- Capital Adequacy Ratio stands less than 10% - further decline in the ratio to 8% or lower.
- Violations of Net Open Position Limit on foreign currency.
- Non-compliance with provision/s of the Banking Act No. 30 of 1988 and regulatory directives issued by the Central Bank of Sri Lanka.
- Non-compliance with regulatory reporting for 3 months or more.
- Failure to address supervisory concerns and violations.
- Poor lending practices.
- Excessive loan concentrations.
- Tension at board level.
- Employee unrest and/or work to rule.
- Shareholder dominance at board level and conflict of interest.
- Very high management turnover and sudden resignations of senior employees.
- Conducting fraudulent practices (frauds and criminal activities).
- Explicit systemic operational deficiency in IT systems.

3.6.3 Methods of Resolution

Several resolution methods have been mentioned in the plan:

- **Deposit insurance:** Deposit insurance constitutes a solution to protect small depositors and to avoid bank runs.
- **Purchase and Assumption:** A purchase and assumption transaction or resolution is one in which a healthy bank or group of investors assume some or all of the obligations and purchase some or all of the assets of the failed or failing bank.
- **Bridge Banking:** The term bridge bank refers to a temporary bank established and operated by the deposit insurer to acquire the assets and assume the liabilities of a failed bank until a final resolution can be accomplished.
- **Open-bank Assistance:** The term Open Bank Assistance refers to a resolution method in which an insured bank in danger of failing receives assistance in the form of a direct loan, an assisted merger, or a purchase of assets.
- **Restructuring the bank:** The most common interventions include replacing management, implementing operational and organisational changes to contain further losses to depositors and creditors, and prohibiting activities that will aggravate the weaknesses. Simultaneously, obtaining the support of current management to ensure business continuity having suspended business.

- **Mergers and acquisitions:** Merger or acquisition of failing banks by another bank/banks that are induced by banking authorities.
- **Liquidation:** If a private sector merger is not possible, a decision is often made to liquidate the bank. The objective of liquidation is to maximise the value of asset collections rather than maintain the bank as a going concern.

The CBSL has indicated how to deal with weak bank failures as per available legal provisions in its resolution plan.

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3.6.4 Resolution: RFCs

With a view to improving soundness in the recent past, the CBSL has taken several steps to restore public confidence in RFCs including the appointment of a managing agent for the distressed companies, appointment of an expert group, announcement of a special stimulus package, and the reduction of the required level of minimum holdings of liquid assets and introduction of a credit guarantee scheme for bank loan facilities to RFCs and SLCs.

In response to the liquidity problems of some RFCs, following the recent developments in the global and financial markets, the CBSL proposed a policy support package which was approved by the government of Sri Lanka in April 2009. This stimulus package for the finance and leasing industry was basically for facilitating the sale of land properties and for issuance of government guarantees for facilities obtained from licensed banks and approved lending institutions. It has been observed that the stimulus package was not so effective due to some structural weaknesses of the RFC sector.

Having considered the need for urgent action to resolve the liquidity constraints of RFCs and SLCs, the CBSL introduced a Credit Guarantee Scheme for bank loan facilities to RFCs and SLCs. The Guarantee Scheme will improve the flow of funds to RFCs and SLCs in the form of asset–backed lending to resolve their liquidity constraints, thereby restoring public confidence and returning commercial operations of RFCs and SLCs back to normal.

The CBSL took several actions against unauthorised deposit-taking institutions. The CBSL has been conducting a public awareness campaign from 2003 onwards to alert the public on the risks of dealing with unauthorised finance businesses. The names of the finance companies and licensed banks that are authorised to accept deposits from the public and carry on finance business have been published regularly in the national newspapers.

3.6.5 Sri Lanka Deposit Insurance Scheme

Regulations relating to the Sri Lanka Deposit Insurance Scheme which is applicable to LCBs, LSBs and RFCs were issued and it will be effective from 1st October 2010. The scheme is to be implemented in the interest of the overall financial stability of the country and it outlined a mechanism to protect small depositors from financial institution failures, thereby maintaining confidence of small depositors.

4. Supporting Tools for Monitoring Financial Stability

The salient tools that the Central Bank uses to monitor the financial stability are Banking Soundness Index, Financial Soundness Indicators, stress tests and reports.

4.1 Banking Soundness Index (BSI)

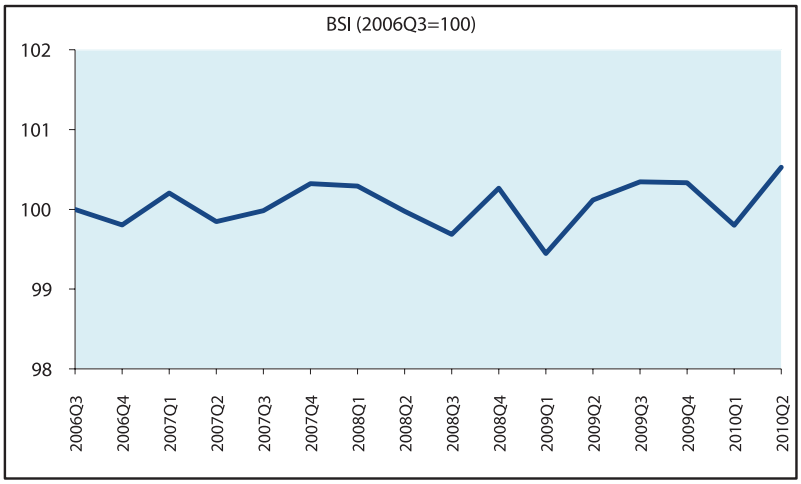
The CBSL introduced a simple Banking Soundness Index (BSI) based on selected financial indicators of the financial soundness indicators representing capital, asset quality, profitability, liquidity and sensitivity to market risks. It is constructed using the weighted average of the partial indicators of the financial soundness of banks. There are six: sub-covering capital, non-performing loans, profitability, liquidity, interest rate risk and foreign exchange risk, which are normalised before aggregation to achieve the same variance. The variables for the index are: capital adequacy, asset quality, profitability, liquidity and market risk[7]. BSI is capable of capturing periods of strong and weak performance of the banking sector. The most critical task in compiling the BSI is the allocation of weights as it is difficult to judge the relative importance of each indicator to the index. This could be done by statistical methods or using the judgement of experts. The partial indicators and their weights may be revised from time to time, depending on their importance

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7. The capital adequacy indicators measure the banks' ability to absorb a reasonable level of losses. The asset quality indicators reveal the credit quality of bank loans. The profitability indicators assess scope for earnings to offset losses relative to capital or loan and asset portfolio. The liquidity indicators assess the vulnerability of the sector to loss of access to market sources of funding or a run on deposits. Market risk is measured in terms of interest rate risk and exchange rate risk. The interest rate risk indicator shows the ability of the banking sector to absorb changes from asset and liability maturity mismatches. The exchange rate risk, indicated by the net open position in foreign exchange to capital, measures the foreign currency mismatch.

The BSI (Q3:2006=100) increased marginally from 100.3 to 100.5 implying a slight improvement in the soundness of the banking sector, mainly due to a decrease in the non-performing ratios, decrease in net open position in foreign exchange to capital funds ratio, and an improvement in the profitability ratios (on a weighted basis). The BSI indicates that the soundness of the banking sector has stabilised during the period of 3rd quarter 2006 to 2nd quarter 2010.

Figure 3
Banking Soundness Index (BSI)



4.2 Financial Soundness Indicators (FSIs)

The CBSL conducts macro-prudential surveillance, which involves the compilation of macroeconomic and financial system information and analysis of such information to identify potential risks and material concerns to financial system stability in the foreseeable future.

Accordingly, the CBSL conducts the surveillance on the basis of monthly and quarterly information collected from the relevant departments of the CBSL and from other outside institutions. The CBSL prepares a list of macroeconomic indicators covering the real sector, monetary sector, external sector, public finance, and equity markets on a quarterly and annual basis (Appendix 1).

The CBSL also prepares monthly and quarterly FSIs for the banking sector, non-banking sector institutions and for the primary dealers. Under the banking industry, FSIs for licensed commercial banks, licensed specialised banks, six systemically important banks, four systemically important banks, domestic private

banks and foreign banks are prepared separately as per format in Appendix 2. The core set of banking sector FSIs are grouped according to the CAMELS framework. Under the non-bank financial institutions, FSIs are prepared for RFCs (Appendix 3), SLCs (Appendix 4), insurance companies (Appendix 5), and primary dealers (Appendix 6).

4.3 Stress Tests

Stress tests are performed on individual banks and on the banking sector as a whole to assess their resilience to extreme shocks on a quarterly basis. The sensitivity tests conducted by IMF under the Financial Sector Assessment Programme (FSAP) are focused on the impact of single shocks on banks' Capital Adequacy Ratio (CAR) and Liquidity Ratio (LR). An integrated stress test is performed where the impact of combined shocks of the credit risk, interest rate risk and exchange rate risk are assessed on the CAR. The results of the stress tests are used as important inputs in the preparation of financial sector risk assessment reports. Stress tests results are usually not disclosed to the public.

4.3.1 Credit Risk Stress Test

The credit risk is tested under the following two different extreme shocks:

a) Increase in the NPL ratio of the banking sector to 15% (through the reclassification and downgrading of NPLs by 4% and a decline in the value of collateral by the same percentage).
b) Increase in the NPL ratio of the banking sector to 20% (through the reclassification and downgrading of NPLs by 8% and a decline in the value of collateral by the same percentage).

The results of the test are analysed by comparing the situations that prevailed prior and after the shocks.

4.3.2 Interest Rate Risk Stress Test

Interest rate risk is tested under different scenarios. As an example, 3 scenarios – Parallel Shift (same interest rate changes were applied to all maturity buckets), Tilt Shift (long-term interest rates increased more than short-term rates) and Inversion Shift (short- term interest rates increased more than long-term rates) could be given. The results of the test are analysed by comparing the situations that prevailed prior to the shocks and after the shocks.

4.3.3 Foreign Exchange Risk Stress Test

The shocks for foreign exchange risk involved a 10 % and 20% depreciation of the exchange rate. The results of the test are analysed by comparing the situations prevailed prior to the shocks and after the shocks.

4.3.4 Liquidity Risk Stress Test

The shock for liquidity risk involved a 10 % and 20 % deposit withdrawal with the use of a restricted set of liquid assets (which assumes that some liquid assets become illiquid under abnormal conditions). The results of the test are analysed by comparing the situations that prevailed prior to the shocks and after the shocks based on the results.

4.3.5 Integrated Stress Test

The integrated stress test consisted of combined shocks to the risk factors under different scenarios. As an example, 2 scenarios are given below:

Scenario 1 – Increase in NPL ratio to 15%, interest rate decrease of 5% and exchange rate depreciation of 10%.
Scenario 2 – Increase in NPL ratio to 20%, interest rate decrease of 5% and exchange rate appreciation of 10%.

The results of the test are analysed by comparing the situations that prevailed prior to the shocks and after the shocks based on the results.

In addition to the FSAP type stress tests based on sensitivity analysis, the CBSL is currently developing a macro-stress test for credit risk based on ordinary least square method using non-performing loan ratio as dependent variable and GDP growth, unemployment rate, interest rate and exchange rate as independent variables.

4.4 Reports

The Financial System Stability Review (FSSR) which is an annual publication of the CBSL provides an overall assessment of the stability of the financial system, as well as the risks faced by the financial system and its capacity to withstand disturbances and shocks. The FSSR also includes the actions that have and should be taken by stakeholders to mitigate risks and to promote financial system stability. The Review included an overall assessment of financial system

stability, potential vulnerabilities and risk mitigation measures, global and domestic macroeconomic developments, the performance of domestic financial markets, the banking sector performance and risks, developments and risks in other financial institutions, i.e., finance, leasing and insurance companies, primary dealers, superannuation funds, unit trusts and stockbrokers. The FSSR is available also in the CBSL website for the information of the public.

The CBSL also provides comprehensive information on the financial sector through the Financial Sector Development and System Stability chapter in its Annual Report, recent Economic Development Reports and 15th September Annual Report.

The CBSL prepares monthly and quarterly financial sector risk assessment reports (FSRA) and submits them to the FSSC. After obtaining the views and observations from the members of the FSSC on the FSRA, the issues relating to the financial sector are submitted to the Monetary Board as an assessment with risk mitigation measures.

In addition to these reports, the CBSL prepares periodical reports based on the information of on-site supervision and off-site surveillance of the financial institutions that are regulated by the CBSL.

5. Assessing Financial System Stability

Financial system is not easy to be defined or measured given the interdependence and the complex interactions of different elements of the financial system among themselves and with the real economy. Therefore, many central banks through their financial stability reports attempt to assess the risks to financial stability by focusing on key indicators. There are continuous efforts to develop a single aggregate measure that could reveal the degree of financial fragility or stress. In line with those efforts, the CBSL has developed a BSI that reflects the conditions of the financial sector. In the absence of a more representative index, the BSI is a useful tool to assess the financial stability in Sri Lanka.

It has been observed that there are several shortcomings relating to the single aggregate indicator like BSI, one of which is the representation limit to the banking sector. However, crisis is difficult to define in a simple way, as various types of crisis such as banking crises, currency crises, debt crises and equity crisis have hit different countries. Therefore, the construction of a composite index covering each type of crisis could be well represented in the financial sector. One of the disadvantages of a single aggregate measure of financial

stability is that it is not clear how well they would perform in signalling on a set of financial stresses. Also, a single aggregate index cannot simply be used to assess financial stability without the knowledge and use of other supporting instruments and indicators.

Key financial stability segments and variables are important, as there are a number of quantitative measures used in order to assess financial stability. The set of financial soundness indicators developed by the IMF are examples of such indicators which are divided into two groups, namely, core indicators and recommended indicators. Core indicators are related to the banking sector while recommended indicators include some other indicators of the banking sector and also indicators from non-bank financial institutions, non-financial corporations, households, financial markets and property markets. The main goal of IMF-FSIs is international compatibility. Therefore, all countries are expected to publish FSIs with using the same methodology. It has been observed that the compilation of FSIs is commonly focused on six sectors: (i) The real sector as described by GDP growth, the fiscal position of government and inflation; (ii) The corporate sector's riskiness by its leverage and expense ratios, its net foreign exchange exposure to equity; (iii) The household sector's health through its net assets and net disposable income; (iv) The conditions in the external sector are reflected by real exchange rates, foreign exchange reserves, the current account, capital flows and maturity currency mismatches; (v) The financial sector is characterised by monetary aggregates, real interest rates, risk measures to the banking sector, banks' capital and liquidity ratios, the quality of their loan book, credit ratings and concentration of their lending activities; and (vi) Financial market conditions, equity prices, corporate spreads, liquidity premia and volatility (Gadaneez and Jayaram, 2009).

The CBSL compiles only core indicators and a number of recommended indicators following the IMF methodology for the banking sector and the non-bank financial institutions. FSIs are most widely used set of indicators to monitor: (a) Performance of the financial system; (b) Financial system vulnerability to various shocks; and (c) Its capacity to absorb losses stemming from the stress identified. The analysis of FSIs usually includes the examination of temporal and cross-sectional variation in the indicators and comparative analysis of peer groups. Although FSIs are expected to have international compatibility, the FSIs compiled by the CBSL seem to have certain issues in international comparison due to differences in data and accounting procedures. However, the FSIs published allow us to make a comparison of banking sector across the countries despite some methodological differences and discrepancies due to national limitations of

data. Since those FSIs compiled by the CBSL do not cover all the areas, it needs to expand the coverage through compiling more FSIs.

One of the advantages of the use of FSIs as the key indicators of financial stability is that they provide the benchmarks and thresholds which would characterise behaviour in normal times and during periods of stress. In the absence of benchmarks, the analysis of these measures would depend on identifying changes in trend, major disturbances and other outliers (Worrell, 2004).

Although the CBSL compiles the FSIs for the banking sector and non-bank financial institutions, FSIs for the corporate sector and household sector are not compiled at present. The corporate sector and household sector are part of the real sector in the economy, in which they play an important role for many reasons. As the main borrower of financial institutions, the corporate sector is vital for financial stability. When the corporate sector's ability to service debt becomes impaired, non-performing loans in the banking system could rise. Indeed, the sector's financial distress can adversely affect the banking system through the erosion of the value of collaterals held against loans as well as the value of securities held as investment by banks. In this context, corporate sector fragility is a significant source of risk to financial institutions' liquidity and solvency. The household sector has the power to influence the overall economy as a part because of its size and its significant exposure to the financial sector. It also plays an important role in monetary and financial stability as the behaviour of households with respect to resource allocation, including their savings and spending decisions, affect market prices. In line with the development of new financial products and the evolution of risk management in financial institutions, there has been a tendency to shift risks to households. Therefore, in the financial policymaking, there is a need for specific attention to be paid to the household sector's risk profile. Households are a source of financial risks in their capacity as borrowers from financial institutions. Households are also exposed to risks in their capacity as depositors, insurance beneficiaries, equity investors and bond holders. Therefore, there is a need to develop FSIs relating to the household sector in Sri Lanka.

In theory, composite indicators of financial stability are better suited for the definition of threshold or benchmark values to indicate the state of the financial system than individual variables. Moreover, they are useful measures of stress in the system, even in the absence of extreme events. However, Gersl and Hermarek (2006) pointed out that the construction of a single aggregate measure of financial stability is a difficult task given the complex nature of the financial system and the existence of complex links between various sectors. Regardless

of whether a single aggregate measure of financial stability is constructed or not, FSRs need to analyse key variables in the real, banking and financial sectors as well as variables in the external sector (Gadaneez and Jayaram, 2009). In this situation, despite some weaknesses and shortcomings, FSIs are considered a very useful tool in assessing financial stability in Sri Lanka.

It would be useful for the CBSL to conduct regular stress tests due to a number of reasons. The stress tests can be used to support the macro-prudential analysis at the CBSL. Conducting stress tests on a regular basis would help to identify whether overall risks in the system are increasing or decreasing over time. Stress tests also help CBSL to strengthen banking supervision and take appropriate risk mitigation measures. Also, it helps to identify the weak banks that need closer monitoring and follow-up. Quarterly based stress tests are more suitable for the CBSL given the ready availability quarterly data series. The present stress tests for different risks can be conducted for different scenarios .The CBSL also needs to develop scenarios and introduce new ones periodically. With the collection of data for real estate, household sector, etc., stress tests can be extended to assess the vulnerability of banks to different shocks, including equity price shocks and real estate price shock. The results of the stress tests are outcome of extreme events and hence they are not revealed to the public. The CBSL may continue this approach to avoid causing panic among people.

In addition to the present sensitivity tests, the CBSL may develop a macro-stress test to identify the risks from the macroeconomic factors. It can be started with a simple model and gradually extended to an advanced econometric model, (as, for example, the Vector Autoregressive (VAR), Logit/Probit technique). While conducting stress testing on an experimental basis, the CBSL needs to develop its database covering all the variables especially including corporate and household sectors. At present, the CBSL has an on-line data receiving system from banks. It needs to review the data series on a periodical basis and expand it covering important areas, such as the corporate sector, household sector, etc. Simultaneously, it is required to enhance the capacity of the officers in order to handle the advanced econometrics models, interpretation of the results, and make recommendations for various policy measures.

6. Recommendations and Policy Implications

Sri Lanka needs to address some adverse developments in the financial system especially in the markets and institutions. High excess market liquidity in the inter-bank call money market may cause demand pressures and lead to an increase in inflation and interest rate in the future which could raise credit

risk and interest rate for financial institutions. Therefore, financial institutions should continue to apply prudent risk management policies to address any build-up risks.

High increase in equity prices in the CSE and the market price earning ratios indicate a potential of a possible bubble in the future. Therefore, SEC needs to take certain measures including reduction of margin trading limits which is currently at 50% for equity market transactions.

Financial institutions of high NPL with low level provision coverage of the banking industry need increase their provision coverage up to 60%, in order to address credit risk exposure of the banks. It has been observed that high NPLs, weak capital position, liquidity deficiencies and losses of some companies are major unfavourable developments in the RFCs sector. RFCs need to mobilise more capital to meet the regulatory capital requirements to absorb risks and to expand business. Also, they need to have a prudential maximum limit on RFCs' investment in the real estate sector. In the insurance sector, premium of long-term investments declined. Therefore, instruments to manage risks arising from long-term insurance portfolios need to be developed. Issuance of inflation index-linked long-term bonds would help insurance companies to manage risks. Insurance companies also need to have a mandatory corporate governance code as in the case of other financial institutions.

The level of non-performing loans is at a higher level compared to international standards. This should be maintained at a reasonable level. Financial institutions need to continue a cautious approach while providing credit. Having a strong and resilient financial system in times of crisis is important to enable these institutions to continue to intermediate between borrowers and lenders.

In the present context under declining interest rates, financial institutions may experience reductions in interest earnings. Therefore, financial institutions may need to strengthen their sources of income in order to maintain sustainable profitability levels. It is important to improve corporate governance, risk management and internal control practices through enhancing banking supervision and surveillance process.

Supervision and regulatory function is critical in safeguarding financial stability. There is also some evidence that proactive and effective supervision contributes to the efficiency of financial intermediation. Financial sector supervision is more focused to become increasingly risk-based and concerned with validity of the

systems rather than setting them. This effective and appropriate supervision is critical for the effectiveness of capital requirements and market discipline. Banks and financial institutions in Sri Lanka have to prepare for changes in the regulatory framework towards a more focused, comprehensive and efficient environment.

The core function of human resource development in the banking industry is to facilitate performance improvement, not only in terms of financial indicators of operational efficiency but also in terms of the quality of the financial services provided. Factors such as skills, attitudes and knowledge of personnel play a critical role in determining the competitiveness of the financial sector. Therefore, it needs to develop human resources to engage in business and regulation of the financial sector. Information technology has immense untapped potential in banking. The strengthening of IT in banks could improve the effectiveness and efficiency of the sector. Financial institutions can maintain data bases for a wide range of series which can be used periodically for various purposes, including risk management.

A serious limitation in the applicability of standard economic analysis to the banking sector is related to the inadequacies of the data base. Absence of long time-series data storage in the banking industry often poses serious problems to the quest for the formal analytical relationship between variables. Even if such data exists, the presence of structural breaks may blur meaningful analysis based on traditional formulation. In addition to that, IT can be used to strengthen the activities of financial institutions, including strengthening their asset and liability management systems.

In view of the rapid development of the financial sector, Sri Lanka needs to strength its macroeconomic surveillance and financial sector risk assessment. The operational aspects of the functioning of banks are attracting intensive research by professionals, particularly measuring and modeling different kinds of risks faced by banks. The behaviour of risk-return relationship associated with different portfolio mixes and the impact of fluctuations in financial markets on the financial performance of banks are the areas which lend themselves to analytical and empirical appraisal by economists and econometricians.

Another important role of the professional economist in this context is to develop a model for the measurement of various risks in Sri Lankan conditions. This is necessary for a risk-based supervision. Quantification of operational risks and calibration of value at Risk (Var) pose major conditional challenges to bankers and policymakers in Sri Lanka. A major difficulty is identifying the right statistical model that determines the underlying distribution suited to the particular category

of operational loss, and building the necessary data base for deriving operationally meaningful conclusions. Economists and researchers should understand the ground realities in dealing rooms, treasuries and investment units, credit authorisation and loan recoveries, strategic management groups and management information systems of the banks in the changing environment of the banking sector in Sri Lanka. It needs to develop research professionals with a combination of specialist training and operational experience.

Sri Lanka has proposed a few changes in the surrounding legal and institutional environment for legislation. Implementation of various new laws and amendments to existing laws are urgently required. Certain weak links in the banking and non-banking financial sectors have also been noticed and it is important to implement the proposed legislation to avoid unauthorised finance business. The regulatory authorities need to strengthen their supervisory mechanism and monitor the periodical developments.

The CBSL and other regulatory authorities should deploy macro-prudential tools to prevent the building up of systemic risks. The past experience of financial crises highlights the importance of a macro-prudential framework. Goodhart (2004) gives the example of Japan in the 1990s where banks were individually strong but systemically weak in response to real estate shocks. Therefore, soundness of the institutions is critical individually as well as systemically.

In Sri Lanka, as in other developing countries, investment possibilities are limited and in turn the possibilities of trading off risks and expected return are also limited. Because of the absence of liquid private capital markets, investors largely hold their financial wealth in bank deposits and government paper. This shows the need of stimulating the growth of capital markets in Sri Lanka.

Sri Lankan financial markets are small. Therefore, an entry or exit of even a medium-sized investor from industrial countries is capable of causing considerable price fluctuations, even though their placements in these markets account for a small package of their total portfolio. So, it is required to assess the impact of investor concentration and potential risk to the financial markets periodically, with a view to propose appropriate measures.

Although the regulatory requirement of the banking sector is increasingly harmonised with the internally accepted standards, the advanced risk measurement requirement of Basel II in particular imposes additional cost to the banks in Sri Lanka for investment in information technologies, human capital and organisational

restructuring. The weaknesses include weaknesses in prudential regulation, shortage of skilled supervisors and regulators' forbearance. Furthermore there are difficulties in applying a developed country model of regulation which heavily relies on accurate financial information, highly skilled technicians and an impartial bureaucracy.

In the fast changing global and domestic scenario, upgrading technical skills, technology, research and human capital, supervision and surveillance, rules of governance and responsibility assume a renewed priority for the sustainable development of both financial institutions and markets.

7. Conclusions

The financial system in Sri Lanka has been resilient despite some shocks from the recent global financial and economic crisis. The financial institutions continued to perform satisfactorily managing to a greater extent with prudent risk management practices under a strong regulatory framework. On the other hand, weaknesses of the financial system are more apparent in view of tougher prudential norms and greater disclosure conditions. It has revealed the importance of strengthening the soundness of the financial system in normal times with an emphasis given to corporate governance, risk management and internal control practices and processes in banks through enhancing bank supervision and surveillance processes. The CBSL is called to enhance the domestic regulatory and surveillance framework for the betterment as well as development of the financial market.

The impact of corporate debt and household debt in total outstanding bank loans may raise concerns about their implications for monetary and financial stability through the performance of those sectors. Therefore, it is vital to investigate the impact of these sectors upon financial system stability periodically.

It has also been noticed that certain weak links in the banking and non-bank institutions are in the area of regulators. Regulators of financial institutions have already identified the areas that have to be changed. With a view of overcoming some weaknesses, several new laws as well as amendments to the existing laws have been proposed relating to banks, non-banks, insurance institutions, and the stock market. Most of the financial markets in Sri Lanka are less developed and need to be developed in terms of scope and depth based on best international practices. Therefore, Sri Lanka needs to develop a liquid and sound

banking system and other financial institution system to international standards. The critical area of stability of the institutions is to prepare the financial sector stakeholders, including regulators, to the changing situation.

Abbreviations

AG	Assistant Governor
ASPI	All Share Price Index
AWCMR	Average Weighted Call Money Rate
BSI	Banking Soundness Index
BIS	Bank for International Settlement
CAR	Capital Adequacy Ratio
CBSL	Central Bank of Sri Lanka
CDD	Customer Due Diligence
CIT	Cheque Imaging and truncation
CSE	Colombo Stock Exchange
DI	Deposit Insurance
DG	Deputy Governor
DRS	Disaster Recovery Site
FCA	Finance Companies Act
FSAP	Financial Sector Assessment Program
FSSR	Financial System Stability Review
FSRA	Financial sector risk assessment
FSIs	Financial Soundness Indicators
FSSC	Financial System Stability Committee
FSSCC	Financial System Stability Consultative Committee
IBSL	Insurance Board of Sri Lanka
KYC	Know Your Customer
LOLR	Lender of Last Resort
LR	Liquidity ratio
LCBs	Licensed Commercial Banks
LSBs	Licensed Specialised Banks
MLA	Monetary Law Act
NPL	Non– performing loans
NPC	National Payment Council
RTGS	Real Time Gross Settlement
RFCs	Registered Finance Companies
SBP	Seylan Bank Plc
SEC	Securities and Exchange Commission
SRR	Statutory Reserve Requirement
SLIPS	Sri Lanka Interbank Payment System
SLAR	Statutory Liquid Assets Ratio
SLAS	Sri Lanka Accounting Standards
SLCs	Specialised Finance Leasing Companies
VAR	Vector Autoregressive

References

Asli, Alici and Ogur Ozgoker, (2006), "Can Financial Regulations Strengthen Financial Stability in vDeveloping Countries? The Case of Turkey", Paper Presented at the ECPR/CRI Conference, 2006.

Bank for International Settlement, (2009), "The International Financial Crises: Time Line, Impact and Policy Responses in Asia and the Pacific", Representative Office for Asia and Pacific, August 2009.

Central Bank of Sri Lanka, (2008), Annual Report, 2008.

Central Bank of Sri Lanka, (2009), Annual Report, 2009.

Central Bank of Sri Lanka, (2007), Financial System Stability Review, 2007.

Central Bank of Sri Lanka, (2008), Financial System Stability Review, 2008.

Central Bank of Sri Lanka, (2009), Financial System Stability Review, 2009.

Central Bank of Sri Lanka, (2009), Directions, Circulars and Guidelines issued to Licensed Commercial Banks. Viewed at: <http://www.cbsl.gov.lk/pics_n_docs/09_lr/_docs/directions/bsd/LCB_upto_November_2009.pdf>

Cihak, Martin, (2004), "Designing Stress Tests for Czech Banking System", CNB International Research and Policy note. Viewed at: <http://econpapers.repec.org/paper/cnbrpnrpn/2004_2f03.htm>

Gadanecz, Blaise and Jayaram Kaushik, "Measures of Financial Stability – A Review", IFC Bulletin No. 31. Viewed at: < http//www.bis.org/ifc/publ/ifcb31ab.pdf?noframes=1>

Gersl, A. and Hermanek, J., (2006), "Financial Stability Indicators: Advantages and Disadvantages of Their Use in the Assessment of the Financial System Stability", Czech National Bank, *Financial Stability Review.*

Insurance Board of Sri Lanka, (2009), Annual Report, 2009.

Jalan, Bimal, "Indian Banking and Finance: Managing New Challenges". Viewed at: <http:/www.bimaljalan.com/speech140102.html>

Petr, Jukabik and Petr Teply, (2008), "Scoring as an Indicator of Financial Stability". Viewed at: http://econpapers.repec.org/bookchap/cnbocpubc/fsr07_2f2.htm

Santoso, Wimboh and Made Sukada, (2009), "Risk Profile of Households and the Impact of Financial Stability", BIS Paper. Viewed at: < http// www.bis.org/publ/bppdf/bispap46h.pdf>

Siregar, Reza Yamora and Lim, C.S. Vincent, (2010), "The Role of Central Banks in Sustaining Economic Recovery and in Achieving Financial Stability", Staff Paper No.74, The SEACEN Centre, February 2010.

Vaidyanathan, R., (2001), "Indian Financial System: The Unorganised Sector", Chartered Financial Analysts, December 2001.

Worrel, D.,(2004), "Quantitative Assessment of the Financial Sector: An Integrated Approach", International Monetary Fund, Working Paper, No.153.

Appendix 1
Macroeconomic Indicators

Indicator	Prepared Annually	Prepared Quarterly	Prepared Monthly
Real GDP Growth (%)		√	
Sector Growth Rate- Agriculture		√	
Industry		√	
Services		√	
CCPI (2002=100) (An.Avg %)			√
CCPI (2002=100) (Point to Point)			√
Monetary Sector			
Broad Money (M2b) (% Change)			√
Credit to Private Sector (% Change)			√
Credit to Private Sector (% GDP)	√		
Net Credit to Government (% Change)			√
Net Credit to Government (% GDP)	√		
Credit to Public Corporations (%Change)			√
Credit to Public Corporations (% GDP)	√		
91 Days – Treasury Bill Interest Rate			√
364 Days – Treasury Bill Interest Rate			√
Average Weighted Prime Lending Rate			√
External Sector			
Export (% Growth – Value In US$)			√
Imports (% Growth – Value In US$)			√
Trade Balance (% GDP)	√		
Terms of Trade Index (1997=100)***(a)***			√
Exchange Rate (Rs./US$) (Indicative Rate)			√
REER (24)- (moving average index)			√
Forward Premium - 1 Month			√
(Month End) 3 Months			√
Gross Official Reserves (US$ Mn.) (Without ACU)			√
Gross Official Reserve Cover (Import months)			√
Total Reserves (US$ Mn)(Without ACU)			√
Total Reserves Cover (Import months)			√
Total Outstanding Commercial Borrowings (US$Mn)			√
Public Finance			
Government Revenue (% GDP)	√		
Government Expenditure (% GDP)	√		
Overall Deficit (% GDP)	√		
Domestic Financing (% GDP)	√		
Foreign Financing (% GDP)	√		
Total Government Debt (% GDP)	√		
Domestic Outstanding Debt (% GDP)	√		
Foreign debt/ domestic debt (%)			√
Short-term domestic debt/ domestic debt (%)			√
Equity Market			
Equity Price Index (ASPI)			√
Stock Market (ASPI) (% Change, Compared to end of Previous Year)			√
Price Earnings Ratio (Market)			√
Market Capitalization (Rs. Bn.)			√

Source: Central Bank of Sri Lanka

Appendix 2
Financial Soundness Indicators – All Banks

Indicator		Prepared Annually	Prepared Quarterly	Prepared Monthly
Capital Adequacy				
1.1	Regulatory Capital to Risk Weighted Assets(RWCAR)			√
1.2	Tier 1 Capital/Risk Weighted Assets(Tier 1 RWCAR)			√
1.3	Net Non – Performing Loans to Total Capital Funds			√
1.4	Debt to Capital Funds			√
1.5	Capital to Assets Ratio			√
Asset Quality				
2.1	Gross Non – Performing Loans (NPL) to Total Gross Loans (w/o Interest in Suspense)			√
2.2	Gross Non – Performing Loans (NPL) to Total Gross Loans (with Interest in Suspense)			√
2.3	Net Non-Performing Loans to Total Gross Loans			√
2.4	Prov Made against Gross Loans			√
2.6	Provision Coverage Ratio (Total)			√
2.5	Provision Coverage Ratio (Specific)			√
2.7	Sector-wise NPL to Total Sector Loans			√
	Agriculture & Fishing			√
	Manufacturing			√
	Tourism			√
	Transport			√
	Construction			√
	Traders			√
	Financial and Business Services			√
	Infrastructure			√
	Other Services			√
2.8	Sectoral Distribution of Loans to Total Gross Loans			
	Agriculture & Fishing			√
	Manufacturing			√
	Tourism			√
	Transport			√
	Construction			√
	Traders			√
	Financial and Business Services			√
	Others Services			√
2.9	Provision Made against Total Assets			√
2.10	Total Loans(Gross) to Total Assets			√
2.11	Investments to Total Assets			√
2.12	Total Income to Total Assets			√
2.13	Net Interest Income to Total Assets			√
2.14	Operating Income to Total Assets			√
Earnings & Profitability				
3.1	Return on Equity(ROE)-After Tax			√
3.2	Return on Assets(ROA)-Before Tax			√
3.3	Return on Assets(ROA)- After Tax			√
3.4	Interest Income to Gross Income			√
3.5	Net Interest Income to Gross Income			√
3.6	Non Interest Income to Total Income			√
3.7	Non Interest Expenses (Operating Expenses) to Total Income			√
3.8	Staff Expenses to Non Interest Expenses			√
3.9	Personnel Expenses to Total Income			√
3.10	Provisions to Total Income			√
3.11	Total Cost to Total Income			√
3.12	Efficiency Ratio			√
3.13	Interest Margin			√
Liquidity				
4.1	Liquid Assets to Total Assets			√
4.2	Statutory Liquid Assets Ratio- DBU			√
Assets/Funding Structure				
5.1	Deposits			√
5.2	Borrowings			√
5.3	Capital to External Funds			√
5.4	Credit to Deposits			√
5.5	Credit to Deposits & Borrowings			√
5.6	Credit to Deposits & Borrowings & Capital			√

Source : Central Bank of Sri Lanka

Appendix 3
Financial Soundness Indicators: Registered Finance Companies

	Indicator	Prepared Annually	Prepared Quarterly	Prepared Monthly
1	Regulatory Capital to Risk Weighted Assets(RWCAR)			√
2	Tier 1 Capital/Risk Weighted Assets(Tier 1 RWCAR)			√
3	Capital Funds to Assets Ratio			√
4	Capital Funds to Deposits Liabilities			√
5	Non Performing Loans Net of Provisions to Capital Funds			√
6	Non Performing Accommodation (NPA) to Total Accommodation			√
7	Provisions to Non Performing Accommodation			√
8	Return on Assets(ROA)-(Before tax)			√
9	Return on Assets(ROA)-After tax			√
10	Return on Equity(ROE)-After tax			√
11	Net Interest Income to Gross Income			√
12	Net Interest Income to Total Assets			√
14	Non Interest Expenses (Operating Expenses) to Income			√
15	Staff Expenses to Non Interest Expenses			√
16	Total Cost to Total Income			√
17	Liquidity Assets to Total Assets			√
18	Liquidity Assets to Short Term Liabilities			√
Assets/Funding Structure				
19	Deposits			√
20	Loans & Advances			√
21	Investments			√
22	Credit to Deposits			√
Lending				
23	Total Accommodation Growth			√

Source: Central Bank of Sri Lanka

Appendix 4
Financial Soundness Indicators: Specialised Leasing Companies

Indicator		Prepared Annually	Prepared Quarterly	Prepared Monthly
Capital Adequacy				
1.1	Capital Funds to Total Assets		√	
1.2	Total Borrowings to Capital Funds (Gearing)		√	
Asset Quality				
2.1	Non Performing Accommodation (NPA)to Total Accommodation		√	
2.2	Provisions to NPA		√	
2.3	Total Advances to Total Assets		√	
2.4	Total Advances to Total Borrowings		√	
2.5	Provision Made against Total Advances		√	
Liquidity				
3.1	Net Loans to Total Borrowings		√	
3.2	Liquid Assets to Total Assets		√	
3.3	Liquid Assets to Total Borrowings		√	
Earnings				
4.1	Net Profits Before Tax to Total Assets (ROA)		√	
4.2	Operating Profit Before Provision to Total Assets		√	
4.3	Profit After Tax to Capital Funds (ROE)		√	
4.4	Interest Income to Interest Expenses		√	
4.5	Net Interest Income to Gross Income		√	
4.6	Net Interest Income to Total Assets		√	
4.7	Net Interest Income to Net Profit Before Tax		√	
4.8	Operating Cost to Net Interest Income		√	
Assets/Funding Structure				
5.1	Bank Borrowings		√	
5.2	Investments		√	
Lending				
6.1	Total Accommodation Growth		√	

Source:Central Bank of Sri Lanka

Appendix 5
Financial Soundness Indicators: Insurance Companies

Indicator		Prepared Annually	Prepared Quarterly	Prepared Monthly
1	RWCAR (%)			√
2	Tier 1 Capital (RWCAR) (%)			√
3	Capital Leverage Ratio			√
4	Return On Assets (Before Tax) (%)			√
5	Return On Equity (Before Tax) (%)			√
6	Operating Expenses to Gross Income (%)			√
7	Total Cost To Total Income (%)			√
8	Duration of Assets & Liabilities			√

Source: Central Bank of Sri Lanka

Appendix 6
Financial Soundness Indicators: Primary Dealers

Indicator	Prepared Annually	Prepared Quarterly	Prepared Monthly
Life Insurance			
Premium Growth (%)		√	
Solvency Margin Ratio (Times)		√	
Retention Ratio (%)		√	
Claim Ratio (%)		√	
General Insurance			
Premium Growth (%)		√	
Solvency Margin Ratio (Times)		√	
Retention Ratio (%)		√	
Claim Ratio (%)		√	

Source: Insurance Companies

Chapter 8

ADDRESSING RISKS IN PROMOTING FINANCIAL STABILITY IN CHINESE TAIPEI

By
Tzong-Ding, Wu[1]

1. Introduction

With its roots in the subprime crisis originating in the United States (US) in August 2007, global financial turmoil deepened to unprecedented levels during 2008. Following the bankruptcy of Lehman Brothers, the crisis deteriorated further. Compared to past crises, the current one lingered on as the bailout measures adopted did not achieve the initially expected results.

The crisis spread rapidly from the housing market to financial institutions and financial markets in the US. With the flourishing of globalization, it spilled from the US to other advanced countries and then to emerging and developing economies. The adverse consequences incurred were not confined to the financial sector but gradually spread to the real economy, which in turn caused repercussion effects on the financial sector, thus forming a vicious feedback loop.

The far-reaching impact of the crisis has caused various countries to adopt unprecedented bailout measures, including eased monetary and expansionary fiscal policies. The promotion speed, application span, implementation frequency, and special measures undertaken during these emergent times have rarely been seen in the history of financial crisis management.

There are a number of ways that central banks or other government agencies can help maintain financial stability, including promoting strong market discipline, strong corporate governance, sound infrastructure, and maintaining a stable macroeconomic environment. Another tool is being able to understand the 'warning bells' that are likely to sound before a financial crisis occurs, and responding appropriately to those warnings when necessary. However, it is useful

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1. Assistant Specialist, Department of Financial Inspection, Central Bank, Chinese Taipei. The views expressed in this report are those of the author and do not necessarily represent those of the CBC (Central Bank, Chinese Taipei) or CBC policy or that of The SEACEN Centre.

to summarize briefly the main factors that typically contribute to financial instability as a lead-in to the discussion of this paper.

In trying to identify the main factors affecting financial stability, there are certain circumstances and conditions which can be listed as having the greatest potential for making financial shocks more likely to emerge or at least for facilitating the dissemination of financial disturbances. First, increased cross-border integration and the presence of large international financial institutions facilitate the dissemination of financial shocks across counties. Second, financial innovation in products and markets, together with the existence of large financial conglomerates facilitate the transmission of financial shocks in domestic financial markets. Finally, strong growth in asset prices and the growing importance of household credit are potential sources of financial instability.

When considering causes of financial instability it is important first to recognize that there are a number of distinct features inherent in financial systems that create an increased potential for fragility relative to the non-financial sector of the economy. To summarize current international perspectives which may be related to the systemic risk in Chinese Taipei banking system, the principal features are:

- **Small capital base.** Given their role as intermediaries between borrowers and lenders, banks tend to have a large amount of assets and liabilities relative to the size of their capital base, especially when compared to non-bank corporations. In the event of significant financial losses, such a thin capital base can make financial institutions more vulnerable to insolvency problems.

- **Liquidity mismatch.** Retail banks face a natural liquidity mismatch between their illiquid assets (such as long-term mortgages) and liquid liabilities (such as deposits), which makes them exposed to liquidity shortages if this risk is not sufficiently managed.

- **Disaster myopia.** Generally, financial crises do not occur frequently within a financial system. When a financial crisis has not threatened for some time, those responsible for managing the risks of financial institutions can become complacent, resulting in an over-emphasis on returns and under-emphasis on managing risk.

- **Irrational exuberance.** It has become recognized that financial markets can at times display ‘irrational exuberance’, where financial market and

asset prices are pushed to levels that no longer reflect the fundamentals that should determine assets prices. For example, herding behaviour can cause financial markets to overshoot their fundamental levels, resulting in asset price bubbles that pose a possible threat to financial stability.

o One tool that might be used by the central bank, when attempting to maintain financial stability is that of monitoring threats to financial stability and being able to intervene in financial markets when necessary. A large part of monitoring threats to financial stability involves monitoring potential leading indicators of financial instability and highlighting possible vulnerabilities in the financial system. This study will focus on the above issues, such as the financial stability framework, macroprudential indicators, macroeconomic indicators, early warning system and stress-testing, etc.

2. Financial Stability in Chinese Taipei

2.2 Current Conditions

Chinese Taipei has strengthened financial re-regulation and supervision in response to changes in the financial environment. The rapid expansion of financial markets, including the deregulation of financial activities, financial innovations, and new entries in the financial sector, as well as the possible disorder associated with financial realignment, have all made re-regulation necessary. In line with the Bank of International Settlements, Chinese Taipei had set its capital adequacy ratio at 8 percent of risky assets. The government also established the Central Deposit Insurance Corporation (CDIC) in 1985 to provide a better safety net for depository institutions. The Banking Act of 1989, while allowing new entrants into the banking industry, also tightened regulations dealing with problematic banks. Regulating some areas while deregulating others has been the most important task of financial restructuring in Chinese Taipei.

Other accompanying rules have been issued and implemented to make the market more conducive for banks to engage in relevant businesses, such as the Amendments to the Banking Act and the Trust Enterprises Act in 2000, and the Act Governing Bills Finance Businesses in 2001. These financial reform laws were aimed at improving the quality of assets, expediting the consolidation of financial institutions, and enhancing investor and depositor confidence in the banking system.

In 2004, financial supervisory framework was significantly restructured in order to enhance the effectiveness of supervision of financial holding companies

on a consolidated basis. The Financial Supervisory Commission (FSC) was established in July 2004 and took over the authority of financial supervision from both Central Bank, Chinese Taipei (CBC) and the Ministry of Finance (MOF). The FSC, with the same standing as a ministry, is in charge of the prudential supervision of all financial institutions including banks, security firms and insurance companies. The CBC stopped carrying out regular full-scope on-site examinations after the establishment of the FSC. To further enhance its function of promoting financial stability, the CBC set up the Financial Stability Assessment Section in January 2006, which is subordinate to the Department of Financial Inspection. The CBC compiles the financial soundness indicators (FSIs) based upon the Compilation Guides for FSIs issued by the IMF and builds up the financial stability assessment framework that is consistent with the nature of our financial system, with reference to the IMF, European Central Bank and other central banks' macroprudential analytical methodologies. Moreover, the CBC issued its first financial stability report in June 2008. Of course, there is some overlap in the tasks of both the FSC and the CBC, but it is sometimes fruitful to approach a problem from somewhat different angles. The cooperation between the authorities works well.

2.2 Organization and Institution

2.2.1 Structure of Financial System

Chinese Taipei has a diverse financial system comprised of many types of markets and institutions. The financial system allocates scarce financial resources between the supply of and demand for funds through a complex web of financial markets and institutions (such as Banking sector, Money market, Foreign exchange market, Stock market, Bond market, Life insurance companies and Bills finance companies, etc.).

In 2009, the health of Chinese Taipei's financial system was restored after experiencing a temporary setback during the global financial turmoil in the second half of 2008. Financial markets, particularly the stock market, improved. The profitability of domestic financial institutions bounced back sharply, while asset quality remained sound. The resilience of the financial sector against risks increased, supported by the fact that capital levels held by financial institutions, except for a few domestic banks and life insurance companies, were adequate and continued to rise. Throughout this period, payment and settlement systems operated smoothly. This, coupled with the introduction of a new mechanism in the securities settlement system for the stock exchange, contributed to reinforce the safety and efficiency in settlements. The rebound in domestic and international

economic activity, paving the way for a stabilising global financial system, mitigated credit and market risks in Chinese Taipei's financial system. Nevertheless, the new challenges emerging from easing restrictions on cross-strait banking activities and investments, together with the concentration of credit risks in the banking sector, warrant continued monitoring.

2.2.1.1 Banking Sector

The Chinese Taipei banking sector is highly fragmented. There are 37 domestic banks and dozens of smaller local credit co-operatives, with no institution holding more than 10% of the market in assets or loans. There were 397 depository institutions in total at the end of 2009.

Domestic banks[2] have played a major role in Chinese Taipei banking system. At the end of 2009, domestic banks accounted for 72.30 percent of deposits and 87.17 percent of loans in terms of market share. As a result, foreign banks' market shares of deposits and loans decreased to 2.42 percent and 2.73 percent, respectively. The Department of Savings and Remittances of Chunghwa Post Co.'s market share of deposits slightly decreased to 15.46 percent at the end of 2009, while its market share of loans continued to fall to a mere 0.02 percent due to mandated restrictions on its lending business. As for medium business banks, their market share of deposits dropped slightly to 3.06 percent, while their market share of loans rose to 4.61 percent. Credit cooperatives recorded modest decreases in their market share of deposit and loans. As for the credit departments of farmer's and fishermen's associations, their market share of deposits rose while that of loans decreased.

Depository institutions' funds increased significantly by NT$2,239 billion during the year 2009 owing to the current account surplus and huge capital inflows. Among the different sources of funds, transaction deposits and net other items were the major contributors to the increase. A notable shift of funds from non-transaction deposits to transaction deposits was the main reason for the increase in transaction deposits and the decrease in non-transaction deposits.

With respect of the uses of funds, the ratio of loans to the total use of funds declined as depository institutions' loans expanded more slowly than deposits. With banks' efforts to contain their investment risks, the funds used for purchasing

2. Data only for headquarter and local branches, excluding data for foreign branches and OBUs.

CDs issued by the CBC increased, taking up a larger share in terms of fund usage.

2.2.1.2 Money Market

Domestic banks were the largest borrower, accounting for 58.21 percent of total trading, followed by Chunghwa Post Co., foreign banks and bills finance companies, with shares of 22.46 percent, 11.03 percent and 7.18 percent, respectively. The share of domestic banks decreased by 15.51 percentage points with the borrowed amount increasing by 22.21 percent. The increase reflected the continuous inflow of foreign capital under more stable financial conditions and an ample supply of liquidity in the banking system. To mop up excess liquidity, the CBC increased the issuance of certificates of deposit.

With regard to lenders, domestic banks continued to be the largest supplier of funds, accounting for 53.60 percent of total transactions. Following domestic banks were foreign banks, Chunghwa Post Co. and medium business banks with respective shares of 40.25 percent, 3.57 percent and 1.77 percent.

In 2009, newly issued short-term bills totaled NT 6,293.4 billion, 9.43 percent less than that in the previous year. Of the new issues of short-term bills, commercial papers continued to account for the lion's share of 85.77 percent, followed by negotiable certificates of deposit with a share of 6.97 percent. Bankers' acceptances made up a marginal share of 0.35 percent. Compared with the previous year, the growth rate of commercial papers issued was negative because corporate demand for funds was weak. On the contrary, the Ministry of Finance increased the issues of treasury bills owing to tax revenue reduction. As of the end of 2009, total outstanding short-term bills amounted to NT$1,043.1 billion, 7.56 percent more than that of the previous year-end.

2.2.1.3 Foreign Exchange Market

Trading in the Taipei foreign exchange market decreased in 2009. Total net trading volume for the year decreased by 15.2 percent from the previous year to US$4,111.29 billion. The daily average turnover was US$ 16.25 billion, representing a decrease of 15.8 percent over the previous year. The decrease in turnover mainly reflected a contraction of international trade and diminishing capital movements. Furthermore, transactions in third currencies decreased because major central banks introduced easy monetary policies to tackle the financial crisis, which narrowed the interest rate spreads between currencies.

As far as traded currencies are concerned, NT dollar trading against foreign currencies accounted for 50.7 percent of the total trading volume, of which trading against the US dollar made up a dominant 48.3 percent. Transactions in third currencies accounted for 49.3 percent of total trading volume, with trading in currency pairs of US dollar-other currencies and US dollar-euro accounting for shares of 23.8 percent and 15.8 percent, respectively.

With respect to transaction types, spot transactions accounted for the highest share of 44.8 percent of total turnover, followed by foreign exchange swaps with a share of 39.6 percent.

2.2.1.4 Stock Market

The Chinese Taipei Stock Exchange (TSE) weighted index (TAIEX) closed the year 2009 up 78.3 percent from the end of the previous year. All industrial groups performed better than last year, with construction and textile industry shares among the strongest. The TAIEX daily average trading value was NT$118.3 billion, increasing by 12.8 percent from the previous year.

At the end of 2009, the number of listed companies in the TSE market totaled 741, an increase of 23 from the end of 2008. The par value of shares issued amounted to NT$5.9 trillion, rising 2.3 percent from a year ago. The total market capitalisation grew 79.7 percent from the previous year-end to NT$21 trillion. In addition, a total of 10 companies issued Chinese Taipei Depository Receipts (TDRs) in 2009, a record increase since the last TDR issuance in 2003.

At the end of 2009, the weighted stock price index of the GreTai securities Market (GTSM), an over-the-counter market, rose 133.1 percent compared to the end of 2008, with all industrial group shares gaining. The daily average trading value was NT$20.9 billion, an increase of 58.3 percent from the previous year.

At the end of 2009, the number of listed companies in the GTSM market increased by 7 from a year before, bringing the total to 546. This showed a turnaround from the first-ever annual decrease in 2008. The par value of total shares amounted to NT$772.7 billion at the year-end, rising 9.9 percent from the end of the year before. Market capitalization surged by a remarkable 147.9 percent from the previous year-end to NT$1,914.2 billion.

2.2.1.5 Bond Market

During the first half of 2009, Chinese Taipei's capital markets remained overshadowed by the global economic downturn. Issuances of corporate bonds and bank debentures drastically declined from the level a year earlier. In the second half of the year, capital markets regained momentum along with the pace of economic recovery. For the year as a whole, new issues of bonds totaled NT$1,062.9 billion, a decrease of NT$283.4 billion or 21.05 percent from the previous year.

While issuance of government bonds and foreign bonds increased, issuance of all the other types of bonds decreased. At the end of 2009, the outstanding amount of bonds issued stood at NT$6,251.9 billion, a slight increase of NT$85.2 billion or 1.38 percent from the previous year-end.

In the secondary market, transactions continued to decline due to a lack of supply relative to demand for investment vehicles. The annual total decreased by NT$37,962.0 billion or 28.01 percent from the previous year to NT$97,547.5 billion. With respect to fixed income and quasi money funds, net assets decreased by NT$17.4 billion or 1.85 percent over the year to NT$925.3 billion at the end of 2009.

2.2.1.6 Life Insurance Companies

A combination of pension reform, financial incentives and the relaxation of product and investment restrictions has contributed to the continued growth in insurance demand. There are 30 life insurance companies operating in Chinese Taipei, of which 8 are foreign-owned. Chinese Taipei's insurance market is highly competitive.

The total assets of life insurance companies increased by 18.03% year on year in 2009, and reached NT$10.81 trillion at the end of 2009, equivalent to 86.28% of annual GDP.

The structure of the life insurance industry changed little in 2009. As of the end of 2009, twenty-two domestic life insurance companies held a market share of 98.69% by assets, while eight foreign life insurance companies[3] commanded

3. Including foreign affiliates.

a share of only 1.31%. In terms of assets, the top three companies held a combined market share of 54.17%, while in terms of premium income, the top three companies held a combined market share of 52.92%.

The funds of life insurance companies at the end of 2009 were mainly invested in domestic and foreign securities, accounting for 65% of funds, while 11% of funds were in loans and 4% in real estate. As for the sources of funds, various policy reserves constituted 82%, while net worth accounted for 4%.

2.2.1.7 Bills Finance Companies

A total of 10 bills finance companies are in the market as of the end of 2009. The total assets of bills finance companies continued to decline and stood at NT$729.1 billion, or 5.82% of annual GDP. The three largest bills finance companies commanded a market share by assets of 71.01% in total, while each of the other firms had a market share below 7%.

As for asset/liability structure at the end of 2009, bonds and bills investments on the asset side accounted for 91.28% of total assets, while bills and bonds payable under repo agreements as well as borrowings on the liability side accounted for 81.67%.

2.2.2 Organizations that are Responsible for Maintaining and Stabilizing the Financial System

2.2.2.1 Central Bank, Chinese Taipei

- **Key points of the task to promote financial stability**

Promoting financial stability is not only one of the operational objectives pursued by the CBC, but also lays the cornerstone for the effective implementation of monetary policy. To achieve this objective, in addition to serving as lender of last resort when necessary, the CBC regularly monitors the financial system and the overall economic and financial environment. This allows it to be constantly aware of the potential vulnerabilities and risks that could threaten financial stability so that the relevant financial authorities and market participants can respond in a timely manner to avoid financial turbulence. In its work to promote financial stability, the CBC focuses primarily on the risks that could affect the stability of the overall financial system. Nevertheless, the CBC still pays close attention to the status of individual institutions as their weaknesses can trigger systemic risks.

Pursuant to the Central Bank, Chinese Taipei Act, the CBC conducts targeted examinations to ensure effective enforcement of related regulations, and establishes an offsite monitoring system and a financial stability assessment framework to systematically monitor, analyze, and evaluate the potential sources of financial system risks in order to adopt appropriate policies and measures in a timely manner.

- **Implementing targeted examinations**

The CBC conducts targeted examinations related to monetary, credit, and foreign exchange policies and payment systems when necessary. The targeted examinations in 2009 inspected the handling of counterfeit money by financial institutions, maintenance of required reserves, 921 earthquake relief loans, forward foreign exchange transactions, foreign exchange remittances, the operation of foreign currency exchanges by authorized money exchangers, and correctness of reporting to the CBC, etc.

- **Following up on banks' compliance with the examination findings**

In light of the CBC's examination findings and the FSC's examination findings related to the CBC's business or regulations, the CBC monitors what the examined financial institutions have done to improve, urges the financial institutions to rectify related deficiencies, and thus ensures the successful implementation of the CBC's policies.

- **Off-site monitoring**

Based on the periodical reports submitted by financial institutions and utilizing the computerized offsite monitoring system, the CBC assesses the operation, financial conditions and regulatory compliance of individual financial institutions.

Moreover, the CBC regularly compiles and publishes various financial institution statistics and the most recent financial regulations. The CBC also discloses related information on the CBC's website. Therefore, the transparency of the operation of financial institutions is increased, reinforcing the market discipline mechanism.

- **Financial stability assessment**

The CBC compiles financial soundness indicators and issued the fourth financial stability report in 2010 so that related competent authorities, market participants and the public can understand the status and sources of financial system risks in Chinese Taipei. This will also promote cross-border exchange of information on financial stability.

- **International cooperation of financial supervision**

The CBC actively engages in international cooperation of financial supervision. The CBC assigned a researcher for the SEACEN centre research project on the practice of liquidity risk management and provided the Centre with needed information regarding the "College of Supervisors" survey. The CBC also provided the World Bank's Consultative Group to Assist the Poor (CGAP)[4] with information about Chinese Taipei's savings, finance and consumer protection.

2.2.2.2 Financial Supervisory Commission

In order to promote an integrated financial supervision, the Financial Supervisory Commission was established on July 1, 2004. The primary objectives of the Commission are to consolidate the supervision of banking, securities and insurance sectors, and to act as a single regulator for all of these industries.

The FSC's Board of Commissioners consists of 9 members, of whom one is the chairperson and two are vice chairperson. All commissioners are educated and experienced in law, economics, banking, public finance, accounting, or management. The non-partisan nature of FSC allows for professional expertise, fairness, and independence in its decision-making and enforcement activities. A board resolution can be passed only with the consent of the majority of the commissioners present at a meeting attended by more than 2/3 of the commissioners.

There are 4 bureaus, 4 departments, and 4 offices under the FSC:

(1) 4 Bureaus: Banking, Securities and Futures, Insurance, and Financial Examination Bureau.
(2) 4 Departments: Planning, International Affairs, Legal Affairs, and Information Management Department.
(3) 4 Offices: Secretariat, Personnel, Accounting, and Anti-Corruption Office.

In addition, a Financial Supervisory Fund has been established to support FSC operations and ensure its independence in the development, supervision, and examination of financial markets and the financial services industry.

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4. The Consultative Group to Assist the Poor (CGAP) is a consortium of 33 public and private development agencies working together to expand access to financial services for the poor in developing countries. CGAP was created in 1995 by these aid agencies and industry leaders to help create permanent financial services for the poor on a large scale (often referred to as microfinance).

2.2.2.3 Central Deposit Insurance Corporation

The government-owned CDIC was established on September 27, 1985, with capital jointly invested by the Ministry of Finance and the CBC. CDIC is the only institution in Chinese Taipei exclusively in charge of managing the deposit insurance system and serves as an integral part of the economy's financial safety net. The board of directors consists of seven members who are appointed by the Ministry of Finance and the CBC.

CDIC has strengthened its functions of providing policy insurance since 1999, as all deposit-taking institutions were obligated to join the deposit insurance system. In January 2007, the Deposit Insurance Act had been amended in a large scale; the mandate and functions of the deposit insurance system in Chinese Taipei have been further enhanced.

The policy goals of CDIC were set out in Article 1 of the Deposit Insurance Act. They are:

A. Safeguarding the rights of depositors in financial institutions
B. Maintaining an orderly credit system
C. Enhancing the sound development of financial operations

Important responsibilities were assigned to CDIC by the Deposit Insurance Act to fulfill the purpose of legislation, including:

A. Handling deposit insurance
B. Managing deposit insurance risk
C. Dealing with failing and failed insured institutions

2.2.2.4 Financial Supervision Coordination Group (FSCG)

Pursuant to the Financial Supervisory Commission Act, there is a coordination mechanism among financial supervisory authorities in place. The "Financial Supervision Coordination Group" which is composed of senior officers of the FSC, the CBC and other related financial authorities meets quarterly and when necessary to coordinate and cooperate on issues of financial supervision, management and examination.

2.2.3 Data Warehouse

The Joint Credit Information Center (JCIC) was established in 1975 under the Bankers Association of Taipei, and responsible for collecting, processing, and exchange of credit data among financial institutions. In 17 years of operation, JCIC kept on expanding its business. As a result, the Bankers Association of Taipei decided in 1992 to donate all the operating surplus of JCIC to establish the non-profit "Foundation of Joint Credit Information Center". The new JCIC continues to serve member institutions by providing accurate and quality credit information on a user pay basis. Currently JCIC is the only credit reporting agency that collects credit data from financial institutions in Chinese Taipei, and also the first in Asia that collects both positive and negative credit data on individuals and corporations. In the 2004 "Credit Reporting System Project" by the World Bank Group, JCIC was ranked No. 1 in "public credit registry" among 68 countries (based on the rules on collection of information, the scope of information distribution, the access to information, and the quality of information).

The objectives of JCIC are set to:

A. Establish a nationwide credit information database in Chinese Taipei and to provide credit records as well as operational financial information of economic entities to member institutions.
B. Improve the credit investigation function of the financial sector and to promote the development of credit investigation techniques.
C. Ensure the safety of credit transactions and to promote the sound development of the Chinese Taipei credit system.
D. Provide information needed by the competent authority for financial supervision.

2.3 Regulations and International Compliance

2.3.1 Transparency

In an effort to improve the quality of the information disclosed by financial institutions, and to bring Chinese Taipei's accounting principles in line with international standards, thereby bringing market discipline into greater play, the FSC in recent years has amended a number of laws and regulations governing such matters as financial reports, annual reports, and prospectuses. In drafting these amendments, the FSC has made reference to how disclosure is handled by international banks and financial groups. The following are the amendments:

(1) The "Regulations Governing the Preparation of Financial Reports by Publicly Held Bills Finance Companies" were amended on 23 November 2005.
(2) The "Regulations Governing Information to be published in Financial Institution Prospectuses for Offering and Issuance of Securities" were amended on 26 December 2005.
(3) The "Regulations Governing the Preparation of Financial Reports by Publicly Held Banks" and the "Regulations Governing the Preparation of Financial Reports by Financial Holding Companies" were amended on 29 December 2009.
(4) The "Directions Concerning Important Financial and Business Information Requiring Quarterly Announcement by Banks" were amended on 8 December 2009.

In order to further implement corporate governance and enforce greater transparency regarding the remuneration of directors, supervisors, presidents, and vice presidents, the FSC amended the "Regulations Governing Information to be Published in the Annual Reports of Banks," the "Regulations Governing Information to be Published in Annual Reports of Financial Holding Companies," and the "Regulations Governing Information to be Published in Annual Reports of Bills Finance Companies" on 2 April 2010.

2.3.2 Implementation of Basel II in Chinese Taipei

In order to implement the New Basel Capital Accord, strengthen risk management of domestic banks, and harmonize Chinese Taipei's bank capital adequacy requirements with international standards, the FSC in May 2002 established a joint research team and a promotional task force made up of members representing the competent authorities and industry players. The purpose of the team and task force was to provide venues where bankers can share their experience and build the consensus needed to achieve smooth implementation of Basel II.

Under Pillar 2 (supervisory review), local banks are required to file business plans, internal capital adequacy assessments, and demonstrations of their risk indicator self-assessments. Based on the information provided, the FSC will assess the robustness of these banks' risk management and internal control architecture. Under Pillar 3, all domestic banks should disclose their own qualitative and quantitative risk information of each type of risk. The FSC will review and evaluate the Pillar 3 disclosures of banks. It is expected that Pillar 3 implementation

will enhance market discipline, provide for better oversight of corporate operations and governance, and contribute to the soundness of the financial industry. In sum, the key implementation phases are as follow:

- First Pillar (minimum capital requirements): Chinese Taipei's banks began to calculate their regulatory capital requirements in accordance with the Basel II rules form 2007 Q1;
- Second Pillar (supervisory review): As of April 2008, Chinese Taipei's banks were required to file internal capital adequacy assessment results and risk indicators self-assessment reports with the FSC on an annual basis; and
- Third Pillar (market discipline): As of April 2008, banks were required to establish a special section on their websites to disclose information on capital adequacy and risk management.

Chinese Taipei's regulations on Basel II allow banks to choose among several different approaches to calculating minimum capital requirements. For credit risk, there are the standardized approach, the foundation internal ratings-based approach, and the advanced internal ratings-based approach. For market risk, there are the standardized approach and the internal model. And for operational risk, there are the basic indicator approach, the standardized approach, and the advanced measurement approaches. A bank must obtain approval from the FSC prior to adopting the internal ratings-based approaches to credit risk, the internal model to market risk, and either the standardized approach or the advanced measurement approaches to operational risk. In 2007, all banks in Chinese Taipei used the standardized approach for both credit and market risk, and either the basic indicator approach or the standardized approach for operational risk when calculating minimum capital requirements. Chinese Taipei has followed the BIS schedule and implemented Basel II since 2007. The overall capital adequacy ratio of domestic banks at the end of the fourth quarter of 2009 is 11.86 percent.

The FSC envisages a two-phased implementation of the new capital adequacy system for securities firms, to bring practices in Chinese Taipei more closely in line with the New Basel Capital Accord (Basel II). In phase one, securities subsidiaries of financial holding companies adopted the system in January 2009, applying it to information from December 2008, and other integrated securities firms apply it case by case. In phase two, all integrated securities firms are compelled to implement.

2.3.3 Corporate Governance and Implementation Thereof

Chinese Taipei corporations have the features of family-controlled listed company, potential risk of cross-shareholding, and passive role players of institutional investor. Especially, family control demonstrates a dominant characteristic of large corporations in Chinese Taipei. In many companies, the largest family holds more than half of the board seats. Thus, they have substantial control over decision-making and agendas in shareholders meetings. Under this structure, there is not sufficient check-and-balance mechanism in corporate board and top management. The following are some solutions on corporate governance in Chinese Taipei:

(1) The Corporate Governance Association had established a Corporate Governance Rating System Committee and begun working up corporate governance ratings. Two sets of ratings have already been released, the first on 17 February 2006 and the second on 15 March 2007.
(2) The Financial Supervisory Commission (FSC) on 4 January 2007 issued amendments to the "Regulations Governing Information to be Published in Public Offering and Issuance Prospectuses" and the "Regulations Governing Information to be Published in Annual Reports of Public Companies."
(3) The FSC on 28 March 2006 released a circular letter entitled "Scope of Application for the Required Installation of Independent Directors by Public Companies" and issued the "Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies," the "Regulations Governing the Exercise of Powers by Audit Committees of Public Companies," and the "Regulations Governing Procedure for Board of Directors Meetings of Public Companies." These measures are designed to facilitate implementation of various corporate governance systems and provide public companies with concrete compliance requirements.
(4) In a bid to encourage the directors, supervisors, and managerial officers of exchange-listed and OTC-listed companies to conduct themselves in an ethical manner, the FSC in November 2004 issued the "Guidelines for the Adoption of Codes of Ethical Conduct by Exchange-listed and OTC-Listed Companies." Companies are expected to refer to the Guidelines in adopting codes of ethical conduct suited to their own particular situations.

2.3.4 IFRS Adoption in Chinese Taipei

In response to globalization, the Accounting Research and Development Foundation (ARDF) has been developing domestic accounting standards for a number of years now. During the course of this work, the International Financial

Reporting Standards (IFRS) have served as a primary reference. With the trend towards full adoption of IFRS in the international capital markets, IFRS has recently become virtually a single set of global accounting standards, and today more than 115 countries have adopted or are planning to adopt IFRS. Considering the international trend, encouraging local companies to prepare IFRS financial statements is a matter of some urgency if we are to enhance the international competitiveness of our local capital markets, make them more attractive to foreign investors, and to help domestic companies raise capital overseas.

The ARDF will translate (following specific review procedures) and issue Chinese Taipei-IFRS, i.e. IFRS translated into traditional Chinese, in accordance with which domestic companies will prepare financial statements. Adoption scope and timetable are as follows:

(1) Phase I companies: listed companies and financial institutions supervised by the FSC, except for credit cooperatives, credit card companies and insurance intermediaries:
A. They will be required to prepare financial statements in accordance with Chinese Taipei-IFRS starting from January 1, 2013.
B. Early optional adoption: Firms that have already issued securities overseas, or have registered an overseas securities issuance with the FSC, or have a market capitalization of greater than NT$10 billion, will be permitted to prepare additional consolidated financial statements[5] in accordance with Chinese Taipei-IFRS starting from January 1, 2012. If a company without subsidiaries is not required to prepare consolidated financial statements, it will be permitted to prepare additional individual financial statements on the above conditions.

(2) Phase II companies: unlisted public companies, credit cooperatives and credit card companies:
A. They will be required to prepare financial statements in accordance with Chinese Taipei-IFRS starting from January 1, 2015.
B. They will be permitted to apply Chinese Taipei-IFRS starting from January 1, 2013.

(3) Pre-disclosure about the IFRS adoption plan, and the impact of adoption
To prepare properly for IFRS adoption, domestic companies should propose an IFRS adoption plan and establish a specific taskforce. They should also disclose the related information from 2 years prior to adoption, as follows:

5. To maintain the consistency of information declaration and supervision with other companies, the early adopted companies should still prepare individual and consolidated financial statements in accordance with domestic accounting standards.

A. Phase I companies:
   (A) They will be required to disclose the adoption plan, and the impact of adoption, in 2011 annual financial statements, and in 2012 interim and annual financial statements.
   (B) Early optional adoption:
      a. Companies adopting IFRS early will be required to disclose the adoption plan, and the impact of adoption, in 2010 annual financial statements, and in 2011 interim and annual financial statements.
      b. If a company opts for early adoption of Chinese Taipei-IFRS after January 1, 2011, it will be required to disclose the adoption plan, and the impact of adoption, in 2011 interim and annual financial statements commencing on the decision date.
B. Phase II companies will be required to disclose the related information from 2 years prior to adoption, as stated above.

2.3.5 Fair value Accounting Standards

According to International Accounting Standards No.32 (IAS 32) and Chinese Taipei's Statement of Financial Accounting Standards No.36 (Chinese Taipei's SFAS 36), "Financial Instruments: Disclosure and Presentation," fair value represents the amount for which an asset could be exchanged and a liability could be settled in an arm's-length, orderly transaction between knowledgeable and willing parties. IAS 39 and Chinese Taipei's SFAS 34 "Financial Instruments: Recognition and Measurement" have further mandated that quoted market prices in an active market are strong evidence of fair values. If the markets for financial instruments are not active, however, valuation methodologies may be employed. The acceptable methodologies include the prices generated by recent market transactions (or referring to the current fair value of another instrument that is substantially the same), discounted cash flow analysis, and option pricing models.

Since Chinese Taipei's Statement of financial Accounting Standards No. 34, Financial Instruments: Recognition and Measurement (Chinese Taipei's SFAS 34), was adopted with reference to IAS 39, and local corporations were damaged by the unfavorable international economic situation, the Accounting Research and Development Foundation in Chinese Taipei, referring to the newest amendments to IAS 39 and IFRS 7, published the second amendment to Chinese Taipei's SFAS 34 in October 2008. The second amendment states that, in limited circumstances, trading purpose non-derivative financial assets may be reclassified into other categories, and available-for-sale financial assets may be reclassified into the loans and receivables category. It also allowed retrospective application of the amendment starting from 1 July 2008. Besides, the amendment required

corporations to disclose the following information in the current and subsequent periods when reclassification was made: (1) the book values and fair values of all reclassified assets; (2) the changes in fair value recognized in profits or losses, or stockholders' equity adjustments in each period if the financial asset was not reclassified; and (3) the income and expenses recognized as profits and losses after reclassifications.

3. Risks

3.1 Prevention

3.1.1 Public Awareness

CDIC adopts various channels for communicating deposit insurance information, including public seminars and print and broadcast media and campaigns. In addition to fulfilling the objectives of the deposit insurance system, such communication enhances market discipline and reduces moral hazard.

The CBC also publishes annual FSR to offer insight into the state of Chinese Taipei's financial system and its potential vulnerabilities and risks, and to spark broad-based discussion that will enhance awareness of risk among market participants and spur them to take responsive action in a timely manner. Furthermore, this report is intended to serve as a reference for financial authorities, market participants, and others interested in the subject.

3.1.2 CARSEL Monitoring System

The CBC, while retaining the power to carry out targeted examinations, requires banks to file non-performing loan reports on a monthly basis. To enhance the liquidity management of banks, the CBC also requires banks to report the term structure of fund inflow and outflow denominated in local currency on a monthly basis. The CBC also collects other call reports such as banks' loan-loss reserve provisions, credit card and cash card business, economy risk exposures, financial derivative products and etc. These data, together with systematic analysis and evaluation of banks' business, financial conditions and compliance with regulations, help the CBC in maintaining the off-site monitoring system for all risks. For domestic banks, the off-site monitoring system in CBC is called as CARSEL monitoring system.

3.1.3 Financial Infrastructure-Payment and Settlement

The CBC Interbank Funds-Transfer System (CIFS), an online system for handling large-value electronic payments, lies at the heart of the interbank funds transfer mechanism. It first went into operation in May 1995 and is primarily used to handle interbank funds transfers, reserve account balance adjustments, settlement of interbank loans, NT dollar settlement of foreign exchange transactions, and payments for bond and bills transactions.

In the early years, the CIFS employed net settlement at day end. To better control settlement risks, the CBC adopted RTGS in September 2002, whereby transactions are settled individually as they occur. When paying off individual transactions, financial institutions must have sufficient account balance to cover payment amounts; otherwise the transactions are not processed. This keeps insufficient funds transactions from getting into the system and prevents the occurrence of systemic risk. Additionally, to ensure that financial institutions have sufficient funds in their accounts with the CBC, the CBC provides intraday overdraft support to ease intraday liquidity pressure.

In January 2007, the collapse of China Rebar triggered a run on its subsidiary Chinese Bank. However, a systemic crisis was avoided thanks to a well functioning RTGS system, together with the appropriate measures of the CBC, which monitored interbank transactions in real time via the system and injected liquidity as needed.

In addition, in order to promote sound operations by the private system operator, the CBC has provided the Financial Information Service Co. (FISC) with central bank money for final settlements since its establishment, to ensure that FISC keeps its interbank remittance and ATM funds transfer operations functioning smoothly.

With a view to enabling more efficient clearing and settlement of other fixed income products and providing market participants with one-stop services, the authority for the securities industry merged the Chinese Taipei Securities Central Depository Co. and the Debt Instruments Depository and Clearing Co. in March 2006, renaming it the Chinese Taipei Depository & Clearing Corporation (TDCC).

In order to ensure business continuity, the authorities have required the main operators of Chinese Taipei's payment and settlement system to set up disaster recovery mechanism and contingency plans, and to carry out regularly scheduled

drills. In 2005, the CBC and the competent authorities invited the FISC, the TDCC and other principal operators of the payment and settlement system to take part in a conference to discuss possible measures to promote a sound payment and settlement system. During the conference, system operators were called on to study ways to ensure operational continuity, to formulate risk management measures to address how to respond when a serious accident impedes normal operations, and how to prevent human error in major operation.

To spur operators of settlement and payment systems, especially those of systemic importance to the financial system, to make a strong self-directed effort to ensure sound operations, the CBC required system operators to implement self-assessments in accordance with the Core Principles and Recommendations[6]. System operators are expected to study the areas where they do not measure up to international standards and adopt a timetable for improvements that will bring about effective operations and serve as an important tool for the management and assessment of risk in the future.

3.1.4 Establishment of an Integrated Platform for Credit Risk Analytical Database

According to the IRB approach, the minimum data observation period for PD estimates is five years, while that for LGD (Loss Given Default) and EAD (Exposure at Default) estimates is seven years. A lack of sufficient available data creates a serious obstacle to banks who are considering the use of the IRB approach. To assist banks in tackling this problem, the FSC has instructed JCIC to assemble and prepare the system integration of historical credit-related data that has been collected from banks on a regular basis. JCIC in turn revised its credit-reporting requirements that comply with the Basel II guidelines for measurement of risk components to further improve the types of data collected from banks in April 2004. By drawing upon the historical data established within its database, JCIC is able to set up an Integrated Data Research Platform and is in the process of setting up the Integrated Credit Risk Assessment Models Platform, which would be accessible to banks in Chinese Taipei.

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6. "Core Principles for Systemically Important Payment Systems", Committee on Payment and Settlement Systems (CPSS), Bank for International Settlements, Jan. 2001. A full-text Chinese translation was completed by the CBC's Department of Banking in February 2002.

3.1.5 The Formation of a Market-Based Regulatory System

The FSC may periodically review and evaluate banks' internal capital adequacy assessments and the robustness of their internal control systems. In addition, by employing differential treatment of supervisory review processes, banks with higher risk profiles shall raise their capital; this ensures that banks are operating with adequate capital levels commensurate with their risk profiles. The FSC will ask each bank to perform self-assessment about its strategy of capital adequacy every year. The Commission will then conduct off-site document reviews together with yearly on-site examinations to assess the adequacy and appropriateness of their self-assessments.

The FSC has set up a mechanism to immediately disclose the information about banks' financial and business activities, corporate governance, and risk management operations. Market participants such as depositors, investors, counterparties, and professional institutions may base their business judgments on disclosed information, thereby contributing to the market forces driving toward an enhanced bank risk management practices.

In 2009, the Financial Examination Bureau carried out 452 on-site examinations, including 216 full-scope examinations and 86 targeted examinations on financial institutions (focusing on the corporate governance of financial holding companies; bank deposit, anti-money laundering, loan business and structured notes of banking industry) and 150 examinations on agricultural financial institutions, which were carried out on behalf of the Council of Agriculture, Executive Yuan.

In addition, to enhance disclosure on the implementation of financial examinations, the FSC now discloses relevant examination information on its website and then makes periodical reviews and updates to improve the transparency of examination information and make the public understand its implementation of financial examinations and supervisory concerns.

The FSC also adopted the "Operating Procedures for Monitoring and Evaluation of Efforts by a Financial Institution to Make Improvements Where an Examination by the FSC Financial Examination Bureau Reveals Shortcomings." The procedures require that all the findings for examination reports be classified according to their significance. To effectively review the improvements made on the basis of examination findings, the FSC will place priority focus on the most significant findings and require examinees to establish sound internal control systems.

Furthermore, the FSC set up the "Financial Examination Rating System for Banking Institutions" which is modeled in part after similar examination systems employed by other financial regulators. Working on the basis of trial rating results, the FSC is modifying the financial examination rating system to establish a risk-based financial examination system and enhance the effectiveness of financial examinations.

3.2 Resolution

3.2.1 Legal Receiver

As stipulated by the Deposit Insurance Act, when a financial institution is closed by the competent authority, CDIC will move to maintain order in credit system and protect the interests of depositors by fulfilling its insurance responsibility via different resolution methods. Such methods include straight pay-out; insured deposit transfers; purchase and assumption; and open bank assistance. CDIC is also the legal receiver in commencing the unwinding procedures of the failed institution.

In order to maintain financial stability, the Deposit Insurance Act was amended (effective January 18, 2007). The major amendments to the Act include moves to strengthen the financial safety net centered on the depository insurance mechanism, bolster the risk management mechanism and solvency of the CDIC, and replenish the insurance reserve fund. The amendment will ensure that problem banks are dealt with promptly and effectively.

3.2.2 Coordination and Information Sharing

In order to enhance coordination and information sharing of monitoring, regulatory or examination operations among the FSC, CBC, CDIC or any other government agencies, the FSCG was in place. The FSCG runs as a communication platform. Senior executives of CBC, FSC and CDIC meet periodically and meet at anytime if necessary to consult and cooperate on the above or major financial (supervisory) concerns, including handling failed banks, funding and liquidity of problem banks and foreign banks' operation matter etc.

Regarding the connection with foreign official agencies, the FSC enters into bilateral surveillance MOUs with overseas financial supervisory authorities and strengthen information exchange and cooperation on financial supervisory issues, so as to facilitate the efforts of Chinese Taipei's financial institutions to become more international and implement strategies for regional deployment.

3.2.3 Prompt Corrective Actions and Financial Market Exit Mechanism

In order to enhance the safety and soundness of the banking sector, as well as to reduce the cost of dealing with problem financial institutions, the newly amended Banking Act introduces prompt corrective actions and classifies banks into four categories based on their capital adequacy ratios, namely well capitalized, undercapitalized, significantly undercapitalized and critically undercapitalized. For those undercapitalized or significantly undercapitalized banks, the FSC shall take necessary enforcement actions,[7] such as suspending certain business operations or the duties of management, or placing restrictions on obtaining or disposing certain assets, to urge them to improve their capital adequacy.

Those banks with a capital adequacy ratio or equity to total assets ratio lower than 2% will be deemed as critically undercapitalized. Except for the aforementioned enforcement actions, the FSC shall take them over within 90 days when they are classified as being critically undercapitalized or when they fail to comply with the recapitalization or merger plans within a certain time limit required by the FSC.

Prompt corrective actions assist the FSC in identifying banks with weakening capital structures at an early stage and implementing necessary enforcement and remedial action on a timely basis, and thus help to strengthen banks' capital adequacy and to ensure the safety and soundness of the banking system. Moreover, the FSC are required to take over critically undercapitalized banks within a certain period of time. This requirement will help to speed up the market exit mechanism so as to avoid delaying the resolution of problem banks, as well as to reduce their resolution cost.

Key points of the amended provisions are as follows:

1. Supervisory mechanism based on capital adequacy ratio
   Under the old Banking Act, the capital adequacy ratio of a bank should not be lower than 8% and if necessary, may be raised by the FSC based on

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7. For undercapitalized banks, the enforcement actions include requiring them to submit recapitalization and operational enhancement proposals or limiting the increase of their risk weighted assets. For significantly undercapitalized banks, in addition to those enforcement actions taken for undercapitalized banks, the enforcement actions also include suspending the duties of management, placing restrictions on obtaining or disposing assets, restricting transactions between related parties, limit deposit interest rates, lowering compensation for management, or designating receivers to take over the banks.

international standards. However, as the standard capital adequacy ration varies from economy to economy, the FSC is authorized under the Amendments to set a fixed minimum capital adequacy ratio.

In order to establish a supervisory mechanism for banks based on capital adequacy ratio, the Amendments stipulate that banks may be divided into four categories based on capital adequacy ratio: banks that have adequate capital, banks that have inadequate capital, banks that are obviously short of capital, and banks that are seriously short of capital. A bank is categorized as seriously short of capital if its capital adequacy ration is lower than 2%. In addition, if the ratio of a bank's net worth to asset value is lower than 2%, it will be considered as a bank seriously short of capital. For the other three categories, the FSC is authorized to determine the relevant criteria.

Different immediate rectification measures are applicable under the Amendments to banks falling into the four categories above, ranging from an FSC's order to a bank or its responsible person to provide a capital restructuring plan or other financial and operational improvement plan within a prescribed period to a compulsory receivership by the government. This allows timely actions through imposing restrictions and remedial measures to deal with a bank whose capital adequacy ratio or net value has deteriorated.

2. Strengthening exit mechanism

To integrate the immediate rectification measures and exit mechanism of financial institutions, the Amendments provide an exit mechanism under which the FSC shall take over the management of a bank within 90 days if the bank falls into the category of being seriously short of capital. For a bank that is permitted by the FSC to proceed with restructuring or a merger within a prescribed period but fails to do so, the FSC shall take over the management of the bank within 90 days from the next day upon expiry of the prescribed period.

The Amendments also empower the receiver to handle all litigious and non-litigious matters on behalf of the bank. During the receivership period, the provisions regarding temporary administrators, inspectors, and reorganization under the Company Act and the Bankruptcy Act shall not apply.

As for the expenses and assumption of debts arising from the receivership, it is expressly prescribed under the Amendments that a bank under receivership shall be responsible for all the necessary expenses and debts

incurred by the receiver in the course of his/her/its duties and in maintaining the bank's operations. Payments of such expenses and debts shall have priority over rehabilitation claims and shall be repaid from the assets of the bank undergoing rehabilitation.

3.2.4 Liquidity Injection

In order to assure that a bank maintains adequate liquidity, the CBC, after consultation with the FSC, may from time to time prescribe a minimum ratio between the current assets of the bank and the bank's various liabilities. Upon a bank's failure to comply with said minimum ratio, the FSC shall notify the bank to make due adjustment within a specified period of time.

The items of New Chinese Taipei Dollar-denominated liabilities against which financial institutions are required to put up liquid reserves are as follows:

(1) Checking deposits (including checking deposits and certified checks).
(2) Demand deposits.
(3) Savings deposits (including passbook savings deposits, lump-deposit/ lump-payment savings deposits, installment-deposit/ lump-payment savings deposits, lump-deposit/installment-payment savings deposits, interest-withdrawal savings deposits, and bank employees' savings accounts, provided those portions already pledged are deducted)
(4) Time deposits (including time savings deposits and negotiable certificates of deposit, provided those portions already pledged are deducted)
(5) Government Treasury deposits (the net balance after deducting the re-deposits at the CBC's Treasury Department)
(6) Net dues to banks in call loan market
(7) Bills/bonds sold under repurchase agreements.
(8) Principals received from the sale of structured products by banks.
(9) Other liabilities as designated by the CBC.

All items of New Chinese Taipei Dollar-denominated liabilities of financial institutions shall be subject to a minimum liquid reserve ratio requirement (hereafter referred to as "liquidity ratio"), which shall be set by the CBC in consultation with the FSC).

Qualified liquid reserve assets for financial institutions shall be limited to the followings New Chinese Taipei Dollar-denominated assets:

(1) Excess reserves;
(2) Net dues from banks in call loan market;
(3) Re-deposits at designated banks with term to maturity of no more than one year (either bank re-deposits with the CBC or Grassroots financial institution re-deposits with banks mandated by the CBC);
(4) Certificates of deposit issued by the CBC;
(5) Government bonds;
(6) Treasure bills;
(7) New Chinese Taipei dollar-denominated bonds issued in Chinese Taipei by international financial organizations approved both by the CBC and FSC; and New Chinese Taipei Dollar-denominated corporate bonds issued in Chinese Taipei by foreign issuers in accordance with the "Regulations Governing the Offering and Issuance of Securities by Foreign Securities issuers";
(8) Negotiable certificates of deposit (net balance of each bank's holdings after deducting negotiable certificates of deposit it has issued);
(9) Bank debentures (including subordinate bank debentures, the amount of which being limited to the net-debit position of its bank debentures issued by other banks after subtracting those issued by itself);
(10) Banker's acceptances (net balance of each bank's holdings after deducting drafts it has accepted);
(11) Trade acceptances;
(12) Commercial papers (net balance of each bank's holdings after deducting face value of commercial papers it has guaranteed);
(13) corporate bonds (net balance of each bank's holdings after deducting face value of corporate bond it has guaranteed); and
(14) Other liquid assets as approved by the CBC.

The holding positions on bonds and bills shall include reverse repurchase agreements (RS) but exclude repurchase agreement (RP).

The amounts of qualified liquid reserve assets shall be calculated according to the following rules, provided the financial institution has recorded them according to the Statement of Financial Accounting Standards No. 34:
(1) For assets classified as "financial assets held for trading" and "financial assets designated as at fair value through profit or loss" recorded under "financial assets at fair value through profit or loss", the amount shall be that after adding/deducting valuation adjustment.

(2) For assets classified as “available-for-sale financial assets”, the amount shall be that after deducting accumulated impairment loss and adding/deducting valuation adjustment.
(3) For assets classified as “held-to-maturity financial assets” or “non-active market debt instruments”, the following rules shall be undertaken:
i. For assets listed in subparagraphs 4 through 6 of paragraph 1 hereof, the amount is that after deducting accumulated impairment loss.
ii. For assets listed in subparagraphs 7 through 14 of paragraph 1 hereof shall not serve as liquid reserve assets.

The portion of assets pledged to the CBC as collateral for intraday overdrafts, rediscount, short-term accommodations or accommodations with collateral, and re-deposits of grassroots financial institutions at designated banks with terms to maturity of no more than one year pledged for the purpose of participating in emergency funding mutual support program that remain outstanding at the close of business shall be deducted from the liquid assets on a daily basis.

With respect to the “net dues to banks in call loan market” and the “net dues from banks in call loan market”, the net total for the entire month shall be calculated first. If the net total is due to banks, a daily average shall be filled in on a daily basis and serve as basis for putting up liquid reserve liabilities. If the net total is due from banks, a daily average shall be filled in on a daily basis and serve as the liquid reserve assets.

Financial institutions shall put up liquid reserves on a monthly basis. The daily average of liquid reserve requirement for a given month shall be the sum of average daily balance of all items New Chinese Taipei Dollar-denominated liabilities multiplied by the liquidity ratio for the whole month divided by the number of days in the month.

The daily average of actual liquid reserves for a given month shall be the sum of New Chinese Taipei Dollar-denominated liquid reserve assets for the whole divided by the number of days in the month; financial institutions shall make their own adjustments to ensure their actual daily averages does not fall below their daily averages of liquid reserve requirement.

Financial institutions shall compile the “Liquid Reserves Adjustment Report” on a monthly basis and submit it together with related detailed schedules before the 15th of the following month to the CBC’s Department of Banking (for banks

and Agricultural Bank of Chinese Taipei) or to the banks mandated by the CBC (for credit departments of farmers' associations, credit departments of fishermen's associations, and credit cooperatives) for examination.

The Liquid Reserves Adjustment Report shall be compiled by the head office of the financial institution. In the event of merger of financial institutions, the report shall be compiled by the surviving or newly established financial institution.

The mandated banks shall collect the liquid reserves adjustment reports and relevant schedules prepared by credit departments of the farmers' associations and credit departments of fishermen's associations and credit cooperatives which are examined by branches of mandated banks, and compile accordingly the "Examined Liquid Reserves Summary Report" and submit the same to the Department of Banking prior to the end of the following month for examination and recordation.

The CBC will produce the "Agricultural Finance Institutions Liquid Reserves Status Report" based on the information that credit departments of farmers' associations and credit departments of fishermen's associations submit according to the preceding paragraph, and information submitted by the Agricultural Bank of Chinese Taipei.

The CBC will produce a "Financial Institutions Liquid Reserves Status Report" based on the Liquid Reserves Adjustment Reports submitted by banks and the summary reports mentioned in the preceding two paragraphs.

The CBC will forward a copy of the Financial Institutions Liquid Reserves Status Report to the FSC and a copy of the Agricultural Finance Institutions Liquid Reserves Status Report to the Council of Agriculture, Executive Yuan (hereafter referred to as " the COA").

The CBC and the mandated banks will audit the monthly liquid reserve reports filed by financial institutions. Where there are serious instances of falsification or fabrication, the CBC may conduct an on-site examination.

When financial institutions fail to meet the minimum liquid reserve ratio requirement, the CBC shall ask the FSC or the COA to notify the financial institutions in question to make necessary adjustment within a specified period.

Banks and the Agricultural Bank of Chinese Taipei shall upload on a monthly basis the "Term to Maturity Analysis of NTD Assets/Liabilities" to the "Banks

and Bills Finance Companies Supervisory Information Filing Window" according to the instructions of the CBC's Department of Financial Inspection and control the capital gap for the flow of funds in the zero to thirty days.

Banks and Agricultural Bank of Chinese Taipei shall also report to the CBC's Department of Financial Inspection the historical experience and other parameters used in preparing the "Term to Maturity Analysis of NTD Assets/Liabilities" in the preceding paragraph, and subsequent changes thereto, if any. Where the negative funding gap of from the flow-of-funds in the zero to thirty days exceeds the reference value set by the CBC, the bank shall immediately report to the CBC's Department of Banking with explanations and measures for improvement. The CBC will forward the report to the FSC or the COA.

The CBC may demand banks and the Agricultural Bank of Chinese Taipei to explain the gap according to their "Term to Maturity Analysis of NTD Assets/ Liabilities"; the CBC may conduct an on-site examination when needed.

3.2.5 Lender of Last Resort (LOLR)

The CBC has prescribed0Directions for Central Bank, Chinese Taipei Accommodations to Banks for processing of various accommodation operations to banks, such as qualified bills rediscount, accommodations without collateral, and accommodations with collateral, pursuant to the provision of Article 19 of Central Bank, Chinese Taipei Act.

In addition to the accommodations to banks, the CBC has the power to establish its policy rates pursuant to the provision of Article 21 of Central Bank, Chinese Taipei Act. However, the structure of rates on accommodations and interbank call loan has changed since the beginning of 2003. The rates on accommodations is higher than the rates on interbank call loan and funding in the banking system remains in good supply; therefore, the banks would never apply for emergency funding from the CBC, even in the period of global financial crisis, unless the bank is in unusual and exigent circumstances (for example, the Chung Hwa bank applied for emergency funding from the CBC while it had a problem of emergency credit in the beginning of 2006.) As the accommodation window is seldom used for emergency funding, the accommodation rates is still an important tool of monetary policy stance, for example, in order to spur domestic demand, stabilize the financial system and maintain the momentum of economic growth, the CBC cut its discount rate 7 times from 3.625% to 1.25% in the period of global financial crisis.

The relevant requirements for the CBC accommodations to banks are as follows:

(1) Banks that have access to the CBC's accommodations are those that hold deposit reserve accounts with the Department of Banking of the CBC (including domestic banks, Chinese Taipei branches of foreign banks and the Chunghwa Post Co., Ltd.).
(2) Bills qualified for rediscount are banker's acceptances, commercial acceptances and promissory notes generated through actual transactions in the course of production, manufacturing and selling on the part of public- and private-sector production enterprises.
(3) Rediscount limits shall be set by the CBC based on the scale of the bank deposits; however, when necessary, banks may be exempt from this requirement with approval of the CBC.
(4) Rediscounts will come to term on the maturity dates of the bills. For industrial and commercial bills, the maximum term shall not exceed 90 days; for agricultural bills, the maximum term shall not exceed 180 days.
(5) Rediscounted bills must be registered and endorsed by the borrowing bank.
(6) Interest deducted in advance for a rediscount shall be calculated at the rediscount rate published by the CBC. Prior to the maturity of rediscounted bills, banks may repurchase the said bills from the CBC, and the CBC shall refund the rediscount interest for the unmatured portion.
(7) If a rediscounted bill, presented for payment at maturity, is dishonored, the CBC shall immediately record a debit to the discounting bank's deposit reserve account in the amount of the bill, and return the said bill to the discounting bank.
(8) The maximum term of short-term accommodations shall not exceed ten days. The following types are provided:
    a. Short-term accommodations with eligible collateral.
    b. Short-term accommodations without eligible collateral.
    c. Intraday overdrafts.
(9) In applying for short-term accommodation, banks shall submit to the CBC rediscounted eligible bills, government bonds, the certificates of deposit issued by the CBC, or other securities approved by the CBC as collateral.

    Under the following conditions, banks applying for short-term accommodations may be exempt from providing collateral or additional collateral, provided that such banks shall submit promissory notes to be paid from their banking deposit accounts with the Department of Banking of the CBC:
    a. Experiencing difficulties in providing the collateral listed above when

applying to the CBC for accommodations without collateral to meet the reserve requirement.

b. Applying for accommodation in order to coordinate with the CBC's monetary policy, where the amount of the accommodation is within the limit of the bank's reserves account B.

(10) Interest on accommodations without collateral shall be calculated in accordance with the following provisions, and shall be paid in a lump sum on the accommodation maturity date or prepayment date:

a. For banks that provide eligible collateral, interest shall be calculated at the CBC's published interest rate (in effect at the time of the accommodation) for accommodations with collateral.

b. For banks that do not provide qualified collateral, interest shall be calculated at the CBC's published short-term accommodation interest rate in effect at the time of the accommodation.

c. For banks that applying for accommodation in order to coordinate with the CBC's monetary policy, and are exempt from providing additional collateral within the limit of their reserves accounts B, interest shall be calculated at the CBC's published interest rate (in effect at the time of the accommodation) for accommodations with collateral.

(11) The total amount of accommodations without collateral applied for in a given month shall not exceed ten percent of the required reserves for the applicant bank in the same month. In the event that this limit is exceeded, interest on the amount over the limit shall be calculated at 1.2 times the CBC's published short-term accommodation interest rate. However, banks applying for accommodation in order to coordinate with the CBC's monetary policy shall not be subject to this restriction.

(12) For applicant banks that have already applied to the CBC for accommodations in two consecutive months, starting from the third month, the interest shall be calculated at 1.2 times the CBC's published short-term accommodation interest rate. However, this provision shall not apply to banks applying for accommodations in order to coordinate with the CBC's monetary policy.

(13) The CBC's refinancing of secured loans to banks shall be limited to the following:

a. Undertaking government-approved lending which is also approved by the CBC.

b. Lending undertaken compatible with the CBC's monetary policy.

c. Emergency funding requirements as approved by the CBC.

(14) For funding required by banks as the result of lending approved by both the government and the CBC, or for lending undertaken to coordinate with the CBC's monetary policy, banks may submit a letter to the CBC to apply for discount of secured loans, provided that those banks not providing securities

approved by the CBC as collateral shall further submit a promissory note for payment from their banking deposit accounts established with the Department of Banking of the CBC.

(15) For emergency funding requirements caused by the following conditions, banks may submit a letter of explanation to the CBC, along with the CBC-approved securities or reserves accounts B as collateral, to apply to the CBC for discount of secured loans:

a. Occurrence of unusual depositor withdrawals.

b. Occurrence of unusual depositor withdrawals at financial institutions responding to the need to remit deposit reserves to the said bank, when the said bank undertakes emergency funding accommodation according to procedures.

(16) The maximum term of CBC discount of secured loans shall not exceed 360 days. The interest shall be calculated at the CBC's published interest rate for accommodations with collateral (in effect at the time that the accommodation is made). However, this provision shall not apply to accommodation interest rates under the following conditions:

a. For discount in support of the funding requirements in the situation that undertaking government-approved lending which is also approved by the CBC where special-case the CBC approval has been obtained to reduce the interest rate to not lower than the rediscount rate.

b. For discount in support of the funding requirements in the situation that lending undertaken compatible with the CBC's monetary policy, in cases on special-case consideration, the CBC has approved to reduce the interest rate, but the amount of reduction must not exceed fifty percent of the difference between the secured lending accommodation interest rate and the rediscount rate.

(17) Regarding the principal and interest for the various accommodations payable to the CBC, borrowing banks may affect payment from their banking deposits accounts established with the Department of Banking of the CBC using the online procedures of the CBC's Interbank Funds Allocation and Clearing System.

(18) In deciding whether to approve or reject applications for various types of accommodations, the CBC may refer to the applicant bank's credit rating, the effectiveness of client's credit background checks, the bank's general reserve position, the purpose of the accommodation, cooperation with the CBC's monetary policy, and any major violations or bad record in the past year. In applying to the CBC for various types of accommodation, the applicant shall carry out all related procedures at the Discount Window Division of the CBC's Department of Banking.

3.2.6 Full Deposit Insurance Coverage and Related Supplementary Measures

- **Background to the implementation**

The financial system in Chinese Taipei was temporarily in turmoil in 2008 Q4 in the wake of the deepening international financial crisis. To enhance depositors' confidence and stabilize the financial system, the government announced the measure of a blanket guarantee for deposits in October 2008, accompanied by a package of relevant measures aiming to strengthen financial supervision and regulation. These measures effectively stabilised the market and diminished banks' liquidity risks.

The measure of a blanket guarantee for deposits was initially put into effect until the end of 2009. However, the government announced its extension to the end of 2010 on 8 October 2009, considering the persistence of global economic and financial instability and extensions of the blanket deposit guarantee schemes adopted by neighboring countries, such as Singapore and Hong Kong. The scope of the coverage and special premium surcharges imposed on interbank call loans remains the same. The FSC also takes necessary actions to enhance financial supervision and requires financial institutions to strengthen their liability management, as well as implements Prompt Corrective Actions to impaired banks.

- **The scope of full coverage**

(1) Deposits
   1. Checking deposits.
   2. Passbook deposits.
   3. Time deposits.
   4. Deposits required by law to be deposited in certain financial institutions.
   5. Foreign currency deposits.
   6. Negotiable certificates of deposit.
   7. Deposits from all levels of governments.
   8. Deposits form the Central Bank.
   9. Deposits of banks, postal savings institutions that handle postal savings and remittances – related business, credit cooperatives, farmers' and fishermen's associations that establish credit departments, and the Agricultural Bank of Chinese Taipei.
   10. Other deposits that have been approved as insurable by the FSC.

(2) Interbank call loans

(3) Any expenses, which under the CDIC's conservatorship are necessary to sustain the business operations of insured institutions, as well as pension

payments, redundancy pay and related tax payments in accordance with law.

(4) Bank debentures issued before or on June 23, 2005.

- **Strengthening the functions of financial supervision**

(1) In line with the measures to provide full coverage, the FSC will actively strengthen the following financial supervisory measures:

i. It will urge financial institutions to strengthen the management of assets and liabilities and enhance the transparency of financial business information.

ii. It will strengthen financial institutions' corporate governance, internal controls and internal audit mechanisms. At the same time it will examine the practice rules for corporate governance and will also determine the reasonableness of the emoluments of directors, supervisors and managers of financial institutions and strengthen disclosure.

iii. It will strengthen the management of financial institutions' capital adequacy and financial soundness, and encourage financial institutions to merge.

iv. It will strengthen the management of financial institutions' liability structure to make sure liquidity.

v. For financial institutions at adequate capital levels but with high operating risk, it will strengthen the implementation of Paragraph 1 of Article 44-1 and Article 61-1 of the Banking Act to retain safety and soundness of financial institutions.

vi. For financial institutions at inadequate capital levels, it will strengthen the implementation and operation of prompt corrective actions (PCA) in accordance with Article 44-1, 44-2, 62 and 64 of the Banking Act in order to resolve managerial crisis in the early stage.

vii. It will together with the Central Bank carefully examine financial institutions' interbank call loans for possible anomalies, in order to guard against moral hazard.

(2) If, during the period in which full coverage is implemented, the FSC discovers that a financial institution's capital adequacy ratio is below 8% or there are legal violations, it shall severely punish such an offender in accordance with the Banking Act and other relevant regulations. If a financial institution is deficient in terms of its corporate governance and internal controls, or it shall replenish its capital or make other necessary improvements, it will be required to improve such conditions within a stipulated time period. If the financial institution fails to make the necessary improvements within the stipulated time period, the FSC shall appropriately punish the offending financial institution in accordance with the Banking Act and other relevant regulations, for example by replacing the persons responsible, restricting business activities and implementing other such measures.

- **A special assessment charge on interbank call loans**
  (1) In order to prevent moral hazard as well as to enhance the accumulation of the deposit insurance special reserve, from November 1, 2008 to December 31, 2010, insured institutions in Chinese Taipei will be charged a special assessment. Individual insured institutions will be charged on the basis of a benchmark quota, which is 120% of the average outstanding balance of interbank call loans during the period from April 1 to September 30, 2008. Insured institutions will be charged a basic rate if their interbank call loans are below or equal to the benchmark quota of NT$500 million, and a surcharge rate will be assessed for amounts in excess of NT$500 million. In addition, in line with government policies aimed at strengthening banks' lending capacity, the policies regarding the charging of a special assessment on interbank call loans have included some special conditions such as lending growth as factors for exemption.
  (2) During the implementation of the temporary blanket guarantee, after being notified by the FSC, the CDIC has the discretion to charge punitive premium rates from 5 basis points to 300 basis points on any insured institutions that violate the laws or regulations under the scope of the FSC or engage in unsound business operations that require rectification within a stipulated timeframe.

- **FSC takes steps to discontinue blanket deposit guarantee**
  With the blanket guarantee of all bank deposits set to expire at the end of 2010, the FSC announced that from 1 January 2011 it will reinstate the regular deposit guarantee regime, in preparation for which the following measures have been adopted: (1) The maximum deposit guarantee of NT$1.5 million will be raised to NT$3 million, which means that 98.6% of all deposits will be insured; (2) the FSC is studying possible amendments to Articles 12 and 13 of the Deposit Insurance Act to expand the scope of deposits and interest on deposits (a draft amendment has been submitted to the Legislative Yuan for deliberations, and has been accorded top priority on the agenda for the current legislative session); (3) financial supervision will continue to be strengthened so as to better monitor financial institution liquidity and improve the ability of regulators to react to situations as they arise; and (4) the measures will be publicized though a wide variety of channels to make sure the public is well aware of what is happening.

4. Supporting Tools for Monitoring Financial Stability

The use of monitoring tools, including macroprudential analysis focused on the financial system as a whole, is of utmost importance to identify potential

sources of instability, to limit system-wide distress, and to avoid large output costs. Therefore, it is necessary to have relevant, reliable, timely, and complete standardized data. It is important to note, however, that such information is distorted and meaningless if similar accounting standards are not adopted. It is also important to periodically perform systemic stress tests to analyze the potential impact of adverse macroeconomic shocks under various economic conditions and with different monetary policy responses.

4.1 Financial Stability Index (see Appendix)

To enhance financial stability, the IMF and World Bank launched the Financial Sector Assessment Program (FSAP) in 1999 and developed a comprehensive financial stability analytical framework. Through this, the IMF helps selected countries to identify the soundness, vulnerabilities and sources of risks of their financial systems as well as the relationship between the performance of financial sectors and macroeconomy in order to identify the needs for financial developments and to assist them in developing appropriate policy responses. FSIs, composed of a set of financial indicators associated with financial institutions, financial markets, real estate market, corporations and households, is part of the analytical framework and aims at monitoring the overall risks and vulnerabilities of financial stability.

A large part of monitoring threats to financial stability involves monitoring potential leading indicators of financial instability and highlighting possible vulnerabilities in the financial system. These indicators have become known as 'macroprudential indicators' and include banking system indicators, macroeconomic indicators and information from financial markets.

All domestic banks, including Chunghwa Post Co., Ltd., should file FSI data as of every quarter-end beginning March 2006. Given the above data, the CBC compiles core set indicators quarterly and encouraged set indicators semiannually. These indicators are released periodically in the financial stability report.

4.1.1 Banking System Indicators

Banking system indicators are concerned with the financial condition of banks. However, given the system-wide focus, for the purpose of macroprudential monitoring, banking system indicators are typically assessed on an aggregate basis in respect to the banking industry as a whole. Banking system indicators fall into a number of categories, and are summarized as Capital adequacy, Asset

quality, Provisioning, Exposure concentration, Related party exposures, Liquidity, Sensitivity to market risks, Profitability.

4.1.2 Macroeconomic Indicators

A number of macroeconomic indicators play an important role in assessing potential threats to financial stability. Macroeconomic indicators are mainly used to assess the potential for future threats to the banking system, and are therefore classified more as leading indicators.

Macroeconomic indicators need to be interpreted with caution, and in the context of a wide range of other information. Like banking system indicators, macroeconomic indicators are also typically released with a lag, which may limit their usefulness. A few of main macroeconomic indicators are used in Chinese Taipei, such as credit growth, debt levels, capital flows, capital flow composition, external debt, asset prices, economic growth, interest rates, current account surplus, etc.

4.1.3 Financial Market Indicators

Information from financial markets can also be used to gauge possible threats to financial stability. Financial market indicators also tend to be forward looking, and hence, in theory, embody market expectations of future information, such as profits and debt servicing capabilities. However, one disadvantage of some financial market indicators is that they can be influenced by a relatively high degree of 'noise', which can make interpretation difficult at times. Moreover, in practice, financial market indicators tend to reflect information as events unfold and do not necessarily act as reliable leading indicators of financial instability. That is, by the time markets react, via changes in market prices, the crisis is already unfolding.

There are a number of ways in which various pieces of financial market information can be interpreted as macroprudential indicators, the first being as leading indicators. Some of them are bank share prices, credit spreads, credit ratings, market liquidity, bid-offer spreads, on-the-run/off-the-run spreads and market volumes, etc. The CBC uses the information of credit ratings and market liquidity in the analysis of financial stability.

4.2 Leading Indicators

In an effort to identify and understand the theoretical links between macroprudential indicators and financial instability, one typically investigates which leading indicators have been associated with financial instability in practice and also looks at the question of whether macroprudential indicators can be used successfully to predict financial instability. Unfortunately, it seems that in practice there is little evidence to suggest that macroprudential indicators, on their own, are useful predictors of financial instability.

The general approach is to compare the behaviour of leading indicators before financial crises with their behaviour during the periods of financial stability. A leading indicator, within this context, is one whose unusual behaviour before the crisis would have, in hindsight, significantly contributed to predicting the crisis.

4.3 Stress Testing

One framework to analyze macroprudential indicators is that of financial system 'stress-testing'. Rather than attempting to predict financial crises, stress-testing involves assessing how exposed the financial system is to certain shocks and in the process highlighting what, if any, are the key vulnerabilities in the financial system. Given that the focus is on the stability of the financial system as a whole, the attention of stress-testing tends to be on generalized shocks to the financial system, rather than idiosyncratic shocks that will only affect specific banks and have limited spillover effects. Stress-testing involves assessing the direct impact of these various types of shocks on the profitability and balance sheets of individual banks and the banking system as a whole. In order to incorporate second round effects and feedback to the financial system, stress-testing also involves attempting to estimate the effects on the balance sheets and debt servicing capacities of both the non-financial corporate sector and the household sector.

To reinforce the assessment of financial stability, Chung, Ching-Fan had done a series of studies such as "stress testing on the Chinese Taipei financial system(2008)" and "Evaluation of Chinese Taipei Banks' Credit Losses(2009)", in order to understand the risk sources of Chinese Taipei banks' risk and possible impacts.

As regards to the stress testing on the Chinese Taipei financial system, he used Martin Èihák "Introduction to Applied Stress Testing" as a reference paper and rewrote the code of "Stress Tester 2.0.xls" provided by the author, trying

to build an analytic process:(1) identification of specific vulnerabilities or areas of concern; (ii) construction of a scenario; (iii) mapping the outputs of the scenario into a form that is usable for an analysis of financial institutions' balance sheets and income statements; (iv) performing the numerical analysis; and (v) summarizing and interpreting the results. The aim of his paper is to illustrate the stages of this process using Chinese Taipei bank data. This stress testing is pretty simple and deterministic. It may be used to assess the economic impact of a single economic shock like a drop in loan quality or a spike in interest rates. It doesn't involve the use of econometric models to arrive at an assessment of the system-wide implications of a complex macroeconomic scenario. It is based on a one-period snapshot. However, it is a good starting point to bring all assumptions into one place to see the impact of the changes on the results.

In his second paper, system-focused stress testing can be seen as a multistage process with four steps. The first step is the design of the macroeconomic stress scenario. These are simulated using (i)VAR models, and (ii) pure statistical methods that simulate the multivariate distribution of the macro-economic variables. In the second step of the process, macro variables are mapped to microeconomic indicators of banks' credit risk, usually by means of a "satellite" or auxiliary model. Unlike the VAR models, the credit-risk satellite model is estimated on individual banks' and even individual borrower data. The auxiliary models provide the link between macroeconomic conditions and probability of default at the sector or bank level. The dependent variable is regressed against various macroeconomic variables, such as the nominal interest rate, the inflation rate, the percentage change of real GDP, and the percentage change in the terms of trade. The third step is to project the time path of macro variables under stress conditions. These estimates are fed into the auxiliary model of credit risk in order to determine the stressed credit quality indicators. The final step of the stress-testing process is usually an assessment of whether banks can withstand the assumed shock.

4.4 Early Warning System

In 2003, Wu Yih-Jiuan developed an Early Warning System for Chinese Taipei banking system. The components of the EWS framework are as follows:

1. Macroprudential indicators (MPIs): It is mainly for trend analysis
   (1) Aggregated microprudential indicators
      (a) Financial Soundness Indicators (FSIs):
         Core set (banking sector)
         Encouraged set
      b) Market-based information
   (2) Macroeconomic indicators (leading indicators)

Aggregated Microprudential Indicatiors

FSI （core set） --- deposit-takers	FSI （encouraged set）	Market based information
➢ Capital adequacy ➢ Asset quality ➢ Earnings and profitability ➢ Liquidity ➢ Sensitivity to market risk	➢ Deposit takers ➢ Market liquidity ➢ Nonbank financial institutions, NBFI ➢ Corporate sector ➢ Households ➢ Real estate markets	➢ Financial & insurance sector stock price ➢ Credit ratings for banking sector and corporate sector ➢ Sovereign yield spread

Macroeconomic Indicators

External sustainability	Financial sector	Fiscal sector	Real sector	Global economy

2. Econometric models (ordered probit model): It is for predicting the timing of a financial crisis

In addition to the above study, the CBC closely watches the abrupt changes in the economic and financial sectors. Like most other countries, the CBC carefully tracks some external indicators relevant to the current and capital accounts. Moreover, the CBC would pay attention to the unusually large amounts of short-term capital flows. In practice, there are still some limitations on developing an EWS due to the intrinsic problems arising from the data and statistical models.

4.5 Report

The CBC has published financial stability reports since 2007, first in a semiannual FSR and since 2009, in annual FSR. During that time, the Chinese Taipei economy has been subject to a wide range of macroeconomic shocks. Chinese Taipei's economic growth turned negative in the second half of 2008. Worsening international financial conditions and a declining world economy severely affected Chinese Taipei's export momentum and the production of its manufacturing sector. Domestic enterprises responded with large-scale layoffs or requiring employees to take unpaid leave. Hence this is a timely point for the financial stability report to assess vulnerabilities and explain how financial stability can be promoted.

The coverage of past FSRs has been comprehensive and well organized. The structure adopted in 2009 works well, leading the reader to a discussion of the broad macroeconomic environment and the global financial crisis.

As far as the chapter on macroeconomic developments and financial market is concerned, the text conveys a good sense of what staff believed were the key issue relevant to financial stability: in 2010, the new challenges emerging from easing restrictions on cross-strait banking activities and investments, together with the concentration of credit risks in the banking sector, warrant continued monitoring.

As far as payment and settlement systems are concerned, the FSR again is very thorough, laying out clearly the nature of the risks involved and the principles guiding the CBC's oversight.

The FSRs also use a wide range of data covering macroprudential indicators and the IMF's financial soundness indicators.

5. Assessing Financial System Stability

Let us now turn to the issue of the rigorous and accurate assessment of the degree of financial stability. The main objective of this assessment is the early identification of risks and vulnerabilities that could threaten the smooth functioning of the financial system, interrupting financial intermediation and imposing real economic costs.

5.1 Systemic Indicators for Banking System

Based on Standard & Poor's "Banking Industry Country Risk Assessment (BICRA)" [8] and Fitch Ratings' "Banking System Indicator / Macroprudential Indicator (BSI/MPI)",[9] Chinese Taipei's banking system rating remained unchanged in Group 4 and at level C/1, respectively, in February 2010 (Table 5.1). Compared to other Asian economies, the risks in Chinese Taipei's banking industry were higher than those in Hong Kong and Singapore, about the same as those in Japan, South Korea and Thailand, but much lower than those in China, Indonesia and the Philippines.

8. The classification scheme used by the Banking Industry Country Risk Assessment (BICRA) is a synthetic assessment developed by Standard & Poor's Corporation that is based on the credit standing of financial institutions in the context of the structure and performance of the economy, legal and regulatory infrastructure supporting the financial system, and the competition and operation environment of the banking sector, while factoring out the potential for government support for banks. Assessment results reflect relative country risk and banking sector credit quality, and are indicated with a score of 1 (strongest) to 10 (weakest).

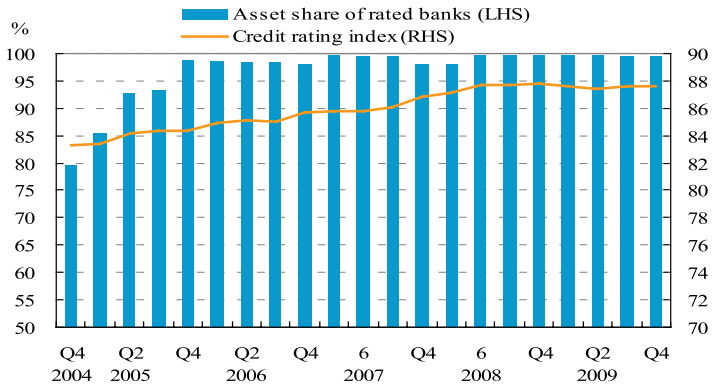
9. Fitch Ratings has devised two complementary measures, the Banking System Indicator (BSI) and Macroprudential Indicator (MPI), to assess banking system vulnerability. The two indicators are brought together in a Systemic Risk Matrix that emphasizes the complementary nature of both indicators. The BSI, based on the synthetic assessment results composed of individual ratings and systematic risks in the banking system, measures intrinsic banking system quality or strength on a scale from A (very high quality) to E (very low quality). On the other hand, the MPI indicates the vulnerability to stress on above-trend levels of private sector credit, a bubble in real asset prices, and/or major currency appreciation, measuring the vulnerability of the macro environment on a scale from 1 (low) to 3 (high) in terms of banking system vulnerability.

Table 5.1
Systemic Risk Indicators for the Banking System

Banking System	Standard and	Fitch
	BICRA	BSI/MPI
Hong Kong	2	B/1
Singapore	2	B/1
Japan	2	C/1
South Korea	4	C/3
Chinese Taipei	**4**	**C/1**
Thailand	6	C/1
China	6	D/1
Indonesia	8	D/1
Philippines	8	D/1

Note: Figures are end-February 2010 data.
Sources: Standard and Poor's and Fitch Ratings.

Chart 5.1
Credit Rating Index of Rated Domestic Banks



Note: End-of-period figures
Source: CBC.

However, according to the rating results of individual banks released by credit rating agencies, there were eight banks downgraded in 2009, resulting in

a slight slide in the credit rating index.[10] It reflected that the overall credit rating of domestic banks marginally declined (Chart 5.1).

5.2 Result of Stress Testing on Chinese Taipei Banking System

■ Liquidity risk

With the blanket guarantee scheme that the FSC adopted in October 2008 – guaranteeing all deposits at Chinese Taipei's banks without limit – set to expire at the end of 2010, the FSC conducted the liquidity test earlier in 2010 in an aim to assess their risk after the global economic crunch.

In the stress test, the FSC asked banks to assess their capital adequacy under two scenarios – one assuming an economic contraction of 1.4 percent, a jobless rate of 6.08 percent, and real estate prices falling by 10 percent, and another assuming a contraction of 2.73 percent, unemployment of 7.39 percent, and a 20 percent fall of housing prices.

At present, the health of Chinese Taipei's financial institutions is quite sound. Chinese Taipei banks' average capital adequacy ratio stood at 11.61 percent as of June 30, 2010, while their bad loan ratio dropped to 0.87 percent and their coverage ratio reached 118.98 percent in late July.

■ Credit risk

Upon the requirement of the Financial Supervisory Commission (FSC), all domestic banks in Chinese Taipei have to undertake stress test, mainly credit risk test for consumer banking and corporate banking, and report the results to the FSC by the middle of September 2010. In view of the overheated market, the FSC has specified the construction industry of corporate banking and housing loans of consumer banking as two independent items in the emulated scenario for the stress test, underscoring its concern about the risk resulting from possible downturn of the realty market. For the test on the credit risk for the construction industry, the FSC requires banks to test possible effect and ensuing risk caused by changes in the value of collaterals due to land-price decline in different areas. Stress test on housing loans will consider two major factors. One is CLTV (current loan-to value), with the aim of realizing the effect of insufficient coverage

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10. The credit rating index is an asset-weighted average rating score of rated domestic banks, measuring the overall creditworthiness of those banks on a scale from 1 (weakest) to 100 (strongest). The rating score for banks is determined according to their long-term issuer ratings from Chinese Taipei Ratings Corporation or national long-term ratings from Fitch Ratings.

of collaterals, in case that realty prices plunge. The other is DBR (debt burden ratio), designed to manifest the possibility of default on unsecured loans by individual borrowers during market downturn. The tests will also include worst-case scenarios for the economy, unemployment and property prices to assess whether banks can survive under these circumstances.

5.3 Handling of Problem Financial Institutions

Through the provisions of prompt corrective actions in the Banking Act and the deposit insurance reserves, the efficiency of market-exit mechanism has improved a lot. This market-exit mechanism has contributed to the handling of many problem financial institutions since 2007. Therefore, it contributes a lot to the financial stability in Chinese Taipei. The cases are as follows:

1. The FSC named the CDIC to take Enterprise Bank of Hualien into receivership beginning from 3:30 p.m. on 5 January 2007. The move was taken in response to the deteriorating financial status of the bank.
2. After two of Chinese Bank's interested parties applied for reorganization, depositors staged a run on the bank, badly damaging its business operations. In order to safeguard depositors and maintain order in the financial sector, the FSC appointed the CDIC to take the bank into receivership effective from 12:01 a.m. on 6 January 2007.
3. The FSC appointed Chinese Taipei Cooperative Bank and Cathay United Bank as receivers of Great Chinese Bills Finance effective from 9:00 a.m. on 7 January 2007 after finding that rapidly rising losses had eroded the firm's solvency and threatened the interests of its customers.
4. The FSC named the CDIC to take Taitung Business Bank into receivership beginning form 3:3: p.m. on 15 December 2006. The move was taken in response to the deteriorating financial status of the bank, where net book value had dipped into the red by the end of September 2006.
5. The FSC named the CDIC to take the China United Trust & Investment Corporation into receivership beginning form 3:30 p.m. on 30 March 2007. The move, which is intended to maintain order in the financial industry and safeguard the interests of depositors, was taken in response to deteriorating financial and operating conditions at the company, where net book value had dipped into the red. The FSC also agreed to allow the CDIC to hire the Bank of Chinese Taipei to run the company's business.
6. The FSC named the CDIC to take Bowa Bank into receivership beginning from 3:30 p.m. on 10 August 2007. the move was taken in response to the markedly deteriorated financial status of the bank, where net book value had dipped into the red.

7. The FSC named the CDIC to take Chinfon Bank into conservatorship beginning from 5 p.m. on 26 September 2008. The move was taken in response to the deteriorating financial and operating status of the bank, where net book value had dipped into the red by the end of September 2006. In addition, the FSC agreed to let CDIC to hire the Bank of Chinese Taipei to administer Chinfon's business while the conservatorship proceedings continue, during which period the functions of the bank's directors, supervisors, and shareholders meetings are all suspended and taken over by the conservator.
8. With concern about the consistent losses of Kuo Hua Life from its business operation and investment, the failure and the lack of active action to inject capital to replenish its solvency ratio within the requested period of time asked by the FSC, the lack of healthy corporate governance due to the frequent change of their directors and supervisors, and the depressing change in financial structure in which its shareholders reached NT$58.9 billion at the end of 2008, which suggested there might be future damage brought upon its policyholders if those situations getting worse, the FSC took Kuo Hua Life insurance Co. under receivership on August 4, 2009 and entrusted Insurance Stabilization Fund as the conservator of the company, under the authorization of Insurance law. Besides, the FSC also instructed Chinese Taipei Insurance Institutions to assist Insurance Stabilization Fund to execute relevant work in form of task force.
9. Because the Kaohsiung Second Credit Co-operative has occurred loss over one third (1/3) of its membership share capital, the FSC appointed the Central Deposit Insurance Corporation to enter the cooperative to assist its operation. After the FSC's intervention, the KSCC has merged with the Tachong Bank on 1 September 2009 and exited the market.
10. The business and financial conditions of Walsun Insurance were deteriorating so significantly that the enterprise had become unable to perform contractual obligations, and the rights and interests of insured parties were being adversely affected, which forced the FSC to order Walsun Insurance to suspend business activities and enter into provisional liquidation proceedings. The FSC also appointed the Chinese Taipei Insurance Institute to act as provisional liquidator to begin provisional liquidation work.

6. Recommendations and Policy Implications

The impact of the recent global financial crisis on Chinese Taipei's financial system was moderate in comparison with what happened in the US and European countries. This was because Chinese Taipei did not suffer from such investment banking problems: its asset securitization was not as developed, and its regulatory

system was comparatively sound in general. Nevertheless, a succession of international financial reforms that will influence the future development of global financial regulation were proposed. Chinese Taipei's financial authorities should closely monitor their progress and take this opportunity to review the differences between Chinese Taipei's current regulatory framework and the international proposals, as well as contemplate further improvements in Chinese Taipei's future financial reform, so as to strengthen financial regulation.

6.1 International Financial Reform

From the beginning of 2009, advanced countries (e.g. the US and the UK) and international organizations successively proposed a number of plans or recommendations on financial reform in hopes of preventing future financial crises. These include: (1) *The Turner Review* and the white paper on *reforming financial markets* in the UK; (2) A comprehensive plan for financial regulatory reform and related draft legislation proposed by the US; (3) Initiatives or resolutions relating to financial regulatory reform made by the G20 and the European Union (EU) summit members; (4) A series of proposals to enhance the Basel II framework and strengthen the liquidity risk monitoring framework announced by the BCBS; and (5) Policy recommendations issued by the IMF.

Table 6.1 summarizes the key recommendations on the above-mentioned financial regulatory reform issues, focusing not only on prevention of systemic risks and macroprudential supervision, but also on the management of capital adequacy and liquidity risk.

On 21 October 2009, the Senior Supervisors Group (SSG), a forum composed of senior supervisors from seven advanced countries, released a report entitled *Risk Management Lessons from the Global Banking Crisis of 2008*. The report not only conveyed their assessment of current weaknesses of the risk management practices in financial institutions, but also identified ten critical areas in need of improvement that require on-going progress by financial institutions to address issues in governance, remuneration, risk management, and market infrastructure.

Table 6.1
The Key International Recommendations for Financial Reform

Item	Issue	Recommendation
1	Coverage of regulation	1. All financial activities that might trigger systemic risk should be monitored appropriately. 2. Strengthening regulation on systemically important financial institutions (SIFIs) and financial instruments.
2	Macroprudential analysis	1. Enhancing macroprudential analysis and policy responses. 2. Developing regulatory tools that are indispensable for monitoring and measuring systemic risk. 3. Taking system-wide considerations on credit expansion, liquidity, asset prices and leverage. 4. Focusing on interconnections among SIFIs and systemic risks.
3	Capital adequacy and accounting	1. Increasing the quality and level of capital. 2. Mitigating the pro-cyclical effects of Basel II. 3. Creating counter-cyclical capital buffers. 4. Establishing lower limits on leverage ratios (i.e. capital/assets), as part of supplementary tools in the Basel II framework. 5. Strengthening stress testing practices in financial institutions.
4	Risk management of financial institutions	1. Requiring financial institutions to implement firm-wide risk management systems; improving the independence of risk management functions and the effectiveness of independent directors' oversight. 2. Improving liquidity management in financial institutions; capital surcharges should be imposed on financial institutions taking higher liquidity risks.
5	Remuneration	1. Remuneration policies should be designed to avoid incentives for taking undue risk. 2. Variable remuneration could take the form of deferred payment or with recourse. 3. Remuneration policies and structures should be transparent. 4. Assuring remuneration committees operate independently. 5. Supervisory authorities should have powers to amend the remuneration structures of financial institutions that perform poorly or require government intervention

6	Supervision and infrastructure of securitization and over-the-counter (OTC) derivatives	1. Requiring originators and issuers of asset securitization to partly take risks arising from the securitized products. 2. Introducing counterparty margin system for OTC derivatives. 3. Developing clearing and central counterparties system for standardized OTC derivatives, in particular for credit default swaps (CDS).4. Imposing higher capital requirements on non-central-clearing derivative products.
7	Credit rating agencies	1. Credit rating agencies should be subject to registration and supervision. 2. Enhancing transparency in the methodologies of credit rating. 3. Differentiating credit ratings of structured financial products. 4. Reducing reliance on credit ratings for prudential supervision. 5. Clearly communicating with investors regarding the appropriate use of credit ratings.
8	Deposit insurance and resolution of impaired financial institutions	1. Making sure that the vast majority of retail depositors are protected. 2. Establishing a regime for the orderly resolution of impaired financial institutions.
9	Global cross-border financial institutions	1. A crisis coordination mechanism and contingency plans should be in place for domestic regulators, the central bank and the Treasury. 2. Establishing a college of supervisors for large and complex financial institutions. 3. Organizing a task force for crisis management of cross-border financial institutions so as to improve information sharing during emergent times.
10	Consumer protection and anti- money laundering	1. Establishing an independent agency for consumer protection and education. 2. Implementing prudential measures to deal with financial transactions relating to tax havens, money laundering, corruption and terrorists.

Source: IMF, BCBS, SSG, G-20 Summits, and official government websites in the UK, the US and the EU.

6.2 Implication for Financial Reform in Chinese Taipei

In view of the above-mentioned international proposals for financial reform, current financial regulation in Chinese Taipei has, in some areas, made significant progress, such as:

- All systemically important financial institutions are covered by current financial regulation;
- A well-established deposit insurance scheme and resolution mechanisms for impaired financial institutions have been put in place;
- Regulators have actively engaged in the improvement of consumer financial education and protection; an exclusive chapter for coping with consumer disputes involving financial services is included in a draft of the Financial Services Act; and
- Significant progress has already been made in facilitating anti-money laundering work. For example, anti-terrorism is governed by the Money Laundering Control Act, which was amended in 2009; the required amount of large cash transactions that should be reported by financial institutions has been lowered to NT$500,000 from NT$1,000,000.

In terms of international cooperation on financial supervision, considering that internationalization with respect to either financial institutions or financial markets in Chinese Taipei is not as developed as that of the US or European countries, the authorities can actively seek opportunities for participation in international cooperation of cross-border supervision.

With regard to other key issues and recommendations listed in Table 6.1, the relevant authorities may make reference to them and make appropriate adjustments. These include:

- Enhancing macroprudential supervision
- Increasing the quality and level of capital requirements for financial institutions;
- Strengthening risk management in financial institutions;
- Reforming financial institutions' remuneration systems;
- Enhancing supervision and infrastructure for securitization and OTC derivatives; and
- Improving the surveillance and transparency of credit rating agencies.

7. Conclusions

To maintain stability in Chinese Taipei's financial markets is Chinese Taipei government's primary objective. The Chinese Taipei government took a number of steps toward that end, including the following: (1) created a sound financial safety net by extending the blanket guarantee for bank deposits to the end of 2010, and strengthened the ability of financial institutions to manage capital adequacy and risks; (2) implemented the "government supports banks, banks support enterprises, enterprises support employees" policy, thereby helping enterprises obtain the working capital they need to maintain normal operations while pushing for financial institutions to reschedule loan repayments for individuals who are involuntarily unemployed; and (3) adopted a requirement for financial institutions to disclose information on professional fees paid to CPAs and remuneration paid to directors and supervisors, so as to strengthen corporate governance. In addition, the government took a number of steps to expand the size of our capital markets, including the following: (1) continued working to encourage high-quality foreign companies to list on the Chinese Taipei Stock Exchange or the GreTai Securities Market; (2) undertook a critical review of securities market trading regulations; and (3) entered into an agreement with the Hong Kong securities authority for cross-listing of ETFs. The government also sought to help enterprises secure financing by: (1) continuing to implement the Program to Encourage Lending by Domestic Banks to Small and Medium Enterprises; and (2) adopting numerous differential regulatory treatment measures to provide positive incentives that encourage banks to provide loans to small and medium enterprises so that they can obtain working capital.

Macroprudential indicators can be used, with an element of sound judgement and careful analysis, to highlight key vulnerabilities in the financial system and assess whether the financial system could cope with adverse economic shocks if they did occur. However, macroprudential indicators are just one tool in a central bank's tool kit. The inherent limitations of macroprudential indicators emphasize the importance of other fundamental ways that central banks and other government agencies can help promote financial stability including promoting strong market discipline for bank management, strong corporate governance structures, sound infrastructure, and maintaining a stable macroeconomic environment.

Risks to financial stability are likely to appear from time to time and therefore we should find that the formulation of a well-articulated strategy to address potential financial imbalances should be a high priority on the agenda of central banks and supervisory authorities. The causes of instability in the financial system

highlight the need for measures to be taken to reduce the potential for financial instability. The CBC has in place a robust approach to financial stability analysis based on an assessment of the condition of the financial system, the sources of risk that could arise and the ability of the system to handle these risks.

Some people may question on how financial stability reports and other studies and analysis contribute to financial stability? Basically, it improves the authorities' awareness and insight in financial sector developments. The CBC present and discuss our reports through meetings with the related authorities. The CBC conducts a joint meeting (Financial Stability Evaluation Meeting) with all relevant authorities summing up the conclusions of the forthcoming Financial Stability report. The CBC puts a lot of effort into informing the financial institutions of our assessments. The CBC is transparent with regard to our analytical tools and invites others to employ them.

References

Aspachs, O., C. Goodhart, M. Segoviano, D. Tsomocos, and l. Zicchino, (2006), "Searching for a Metric for Financial Stability," *OFRC Working Papers Series*, Oxford Financial Research Centre.

Chen, Hsiao Meei, (2008), " Research on the US Subprime Crisis," Open Official Publications Echo Network, http://open.nat.gov.tw/OpenFront/report_detail.jspx?sysId=C09702412

Lehar, A., (2005), "Measuring Systemic Risk: A Risk Management Approach," *Journal of Banking and Finance* 29 (10): 2577-603.

Chung, Ching-Fan, (2008), "Stress Testing on the Chinese Taipei Financial System," The CBC Quarterly, Volume 31, Issue no2.

_____(2010), "Evaluation of Chinese Taipei's Banks' Credit Losses," the CBC Quarterly, Volume 32, Issue no3.

The Central Bank, Chinese Taipei, (2008-2010), "Financial Stability Report," Issue No.1-4.

Wu Yih-Jiuan, Tzung-Ta Yen and Pei-Wen Chen, (2000), "Early Warning system for Currency Crises: An Empirical Study of SEACEN Economies," The SEACEN Centre, Kuala Lumpur, Malaysia.

Wu Yih-Jiuan, (2003), "Early Warning System for Financial Crises: the Case of Chinese Taipei," the CBC Quarterly, Volume 25, Issue No. 3.

Appendix: Financial Soundness Indicators

Table 1: Domestic Banks

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Earnings and profitability						
Return on assets (ROA)	0.64	0.30	-0.06	0.28	0.12	0.28
Return on equity (ROE)	10.25	4.74	-0.94	4.32	1.86	4.52
Net interest income to gross income	62.60	66.11	68.34	66.38	78.53	59.54
Non interest expenses to gross income	46.59	47.84	51.21	54.07	62.97	59.81
Gains and losses on financial instruments to gross income	10.13	11.49	12.63	9.08	3.91	16.43
Personnel expenses* to non-interest expenses	-	-	55.37	55.93	54.80	57.56
Spread between lending and deposit rates (basis points)	2.55	2.45	2.09	1.83	1.76	1.23
Asset quality						
Non-performing loans to total loans	3.82	2.24	2.15	1.83	1.54	1.15
Provision coverage ratio	30.14	50.06	62.26	64.07	69.48	90.35
Capital adequacy						
Regulatory capital to risk-weighted assets	10.87	11.23	10.87	10.80	11.04	11.85
Tier 1 capital to risk-weighted assets	10.25	10.37	9.88	8.50	8.43	9.01
Capital to total assets	6.28	6.45	6.19	6.42	6.12	6.25
Non-performing loans net of provisions to capital	30.61	15.28	15.16	12.22	10.33	6.41
Liquidity						
Customer deposits to total loans	118.10	118.70	119.41	117.98	122.34	133.13
Liquid assets* to total assets	-	-	-	10.59	12.69	15.20
Liquid assets* to short-term liabilities	-	-	-	15.66	18.39	20.98

Table 1：Domestic Banks (cont.)

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Credit risk concentration						
Household loans to total loans	44.89	46.51	46.74	46.59	45.48	46.41
Corporate loans to total loans	41.30	41.60	43.02	43.90	45.27	43.26
Large exposures to capital	-	137.32	144.28	136.85	142.38	142.48
Gross asset positions in financial derivatives* to capital	-	-	5.28	10.35	21.92	8.17
Gross liability positions in financial derivatives* to capital	-	-	4.79	5.44	16.48	8.44
Sensitivity to market risk						
Net open position in foreign exchange* to capital	-	-	3.11	5.02	2.41	2.43
Foreign-currency-denominated loans* to total loans	-	-	13.44	15.57	16.54	16.22
Net open position in equities* to capital	-	-	28.63	30.88	24.99	25.69
Foreign-currency-denominated liabilities* to total liabilities	-	-	19.86	22.20	20.41	19.48

Notes: 1. The items with "*" are only available from 2006. Liquidity asset related items are disclosed from 2007.

2. The data of earnings and profitability in 2006 and 2007 exclude Chinese Bank and Bowa Bank.

3. The figuers for "Spread between lending and deposit rates" exclude the data of the medium business banks. The figures for lending and dep exclude preferred deposits rates of retired government empolyees and central government lending rates.

Table 2: Non-financial Corporate Sector

Units: %, times

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Total liabilities to equity						
Corporate sector	102.15	86.10	85.21	82.20	90.02	-
TWSE-listed companies	66.37	66.06	R 64.27	R 63.23	67.59	65.26
OTC-listed companies	76.67	84.03	R 74.17	R 76.68	R 89.52	66.29
Return on equity						
Corporate sector	11.36	10.88	13.04	13.90	4.76	-
TWSE-listed companies	16.67	14.13	R 15.34	18.03	R 8.07	8.99
OTC-listed companies	15.69	9.26	17.06	R 9.14	-5.97	6.37
Net income before interest and tax / interest expenses (times)						
Corporate sector	7.89	8.97	10.10	10.78	3.39	-
TWSE-listed companies	17.72	15.25	R 16.85	19.07	R 8.25	13.70
OTC-listed companies	12.72	8.38	R 14.07	R 7.81	-	9.53

Notes: 1. The data of all corporates are from JCIC, and those of TWSE-listed and OTC-listed corporates are from TEJ.

2. The figure of "Return on equity" for 2009Q3 is annualized result.

3. The data of "net income before interest and tax / interest expenses" for OTC-listed companies in 2008 is nil due to the net loss of the same year.

4. The figure with "R" is revised data.

Table 3: Household Sector

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Household borrowing to GDP	R 79.50	R 83.15	R 83.17	R 81.47	R 81.41	84.76
Borrowing service and principal payments to gross disposable income	R 43.59	R 45.79	R 43.67	R 42.09	R 40.68	37.88

Notes: 1.The figures of disposable income for 2009 are CBC estimates.

2. The figure with "R" is revised data.

Table 4: Real Estate Market

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Land price index	93.35	94.68	96.38	98.92	100.51	100.38
Residential real estate loans* to total loans	-	-	29.14	30.14	29.16	30.57
Commercial real estate loans* to total loans	-	-	10.74	11.84	12.14	12.47

Notes: 1.Figures of Land price index are on a end-September basis (March 2008 = 100).

2.The items with "*" are only available from 2006.

Table 5: Market Liquidity

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
The turnover ratio of trading value in stock market	177.46	131.36	142.20	153.28	145.45	178.28
The monthly average turnover ratio in bond market	135.40	215.69	140.58	74.65	47.93	31.56

Notes: 1.The turnover ratio in terms of trading value in stock market is the cumulative figure of the period.

2.The monthly average turnover ratio in bond market is the average figure of the period.

Chapter 9

ADDRESSING RISKS IN PROMOTING THAILAND'S FINANCIAL STABILITY

by
Bunnaree Punnarach[1]

1. Introduction

Policymakers in Thailand have learned from the hard experience of the Asian financial crisis in 1997 and saw the importance of having a strong and resilient financial system. In 1997, the financial distress that originated in the financial institutions that invested heavily in the property sector consequently affected the real economy causing it to contract by 10.5% in 1998. The total asset of the financial sector declined due to the failure of many financial companies during that period.[2]

The crisis brought about many policy improvements in Thailand. All were aimed at the achievement of macroeconomic and financial stability. First, the fixed exchange rate regime was replaced by the managed floating exchange rate. Second, the Inflation Targeting monetary policy framework was adopted in May 2000 to enhance the transparency and effectiveness of monetary policy. Third, the banking regulations evolved to pay more attention to procyclicality, systemic importance, and the linkages between financial sector and real economy. This includes participation in the Financial Sector Assessment Programme (FSAP) with the IMF. And fourth is the increasing role of corporate governance in the private sector.

Even though many policies have been improved and implemented, the recent global financial crisis still negatively affected the Thai economy through its export sector, as external demand from the developed economies collapsed. Fortunately, the Thai financial institutions were impacted only mildly this time around, given the strength of Thai financial system and its limited exposure to the distressed financial institutions in those advanced economies.

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1. Senior Economist at the Monetary Policy Department, Bank of Thailand. This comments and opinions expressed in this paper are the views of the author. They do not necessarily represent the position of the Bank of Thailand or The SEACEN Centre.
2. See the chronology of Thailand economic and financial crisis provided in the Appendix 9.1

The objectives of this study are to provide some background on financial stability policy in Thailand and the tools that are developed for monitoring financial stability risks; address some of the challenges faced by policymakers in maintaining financial system stability; and offer recommendations that would enhance the policy effectiveness for financial stability.

2. Financial Stability in Thailand

2.1 Current Conditions

The recent global economic and financial crisis affected the Thai economy through the real economy, mainly via the exports sector which contracted due to the drop in demand from the major trading partners' economies. However, the recovery of the Thai economy from late 2009 to the first quarter of 2010 helped strengthen the balance sheets of both corporate sector and households, and thus provided the favourable conditions for Thailand's financial stability.

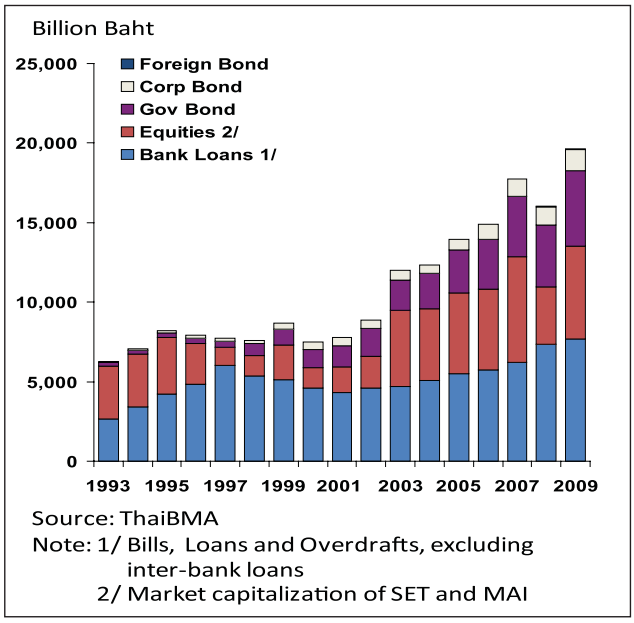
Meanwhile, the financial system continues to be strong and able to facilitate the ongoing economic recovery. As of Q2:2010, the capital in the banking sector was maintained at a high level, with the capital adequacy ratio (or the BIS ratio) of Thai financial institutions as a whole standing at 16.9%, which was well above the minimum requirement of 8.5%. Moreover, the profitability of the financial institutions was improved, as the net interest rate margin (NIM) and the return on asset (ROA) slightly increased to 2.9% cent and 1.2%, respectively. The credit risks of banking assets also declined, with the gross NPL and net NPL to total loans ratios as of the second quarter of 2010 staying at 4.4% and 2.4%, respectively.

2.2 Organisation and Institution

2.2.1 Structure of the Thai Financial Market

The financial market in Thailand can be divided into two major segments: money market and capital market. While the banking sector dis-intermediated after the Asian crisis, direct financing becomes more important and the capital market emerges to play more roles in the Thai economy (Disyatat and Nakornthab, 2003).

Figure 1
Structure of Thai Financial Market



However, commercial bank credit continues to be the main source of financing for the corporate sector with the share of almost half of the financing. For the money market, the major participants are commercial banks. And as of end-2010, there are 17 Thai growing in asset size. commercial banks and 15 foreign bank branches. At the same time, the capital market is growing in its asset size.

There are four major types of financial institutions in Thailand. First, the deposit-taking financial institutions include banks, financial companies, credit fanciers, specialised financial institutions, and cooperatives. Second, the non-deposit-taking financial institutions include life insurance companies, social security fund, specialised financial institutions, and non-bank financial institutions. Third, financial institutions in the stock and bond markets include securities companies, mutual fund companies, and provident fund companies. Fourth, specialised institutions for financial sector resolution include Thai Asset Management Company (TAMC), Sukhumvit Asset Management Company (SMC), and other private Asset Management Companies (AMCs)

2.2.2 Responsibility of Financial Stability in Thailand

Although there is no explicit law defining the institution responsible for the maintenance of financial system stability, the Bank of Thailand (BOT) assumes that responsibility as it plays a dominant role in conducting monetary policy and financial institution supervision. The BOT exercising its supervisory powers is in the position to obtain access to information in the financial sector in the formulation of monetary policy to ensure the price stability.

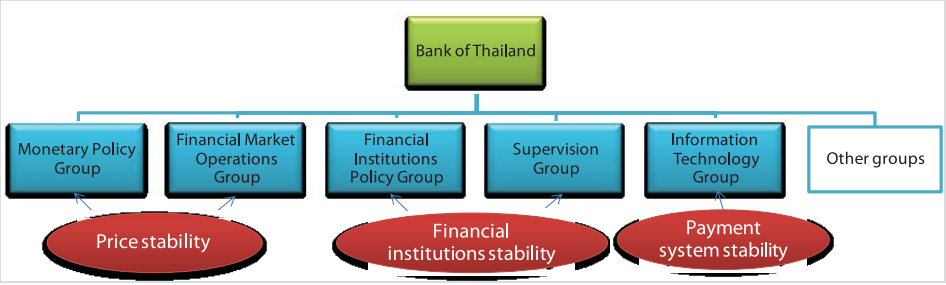
Financial stability comprises three components: monetary stability, financial system stability, and payment system stability. The three components in Thailand come under the ambit of three separate committees. First, the Monetary Policy Committee (MPC) is for monetary stability. Second, the Financial Institution Policy Committee (FIPC) is for financial system stability. And third, the Payment System Committee (PSC) is for payment stability. These committees work closely with the staff of the BOT to achieve their objectives from information sharing and tapping professional expertise in the financial sector in their policy formulation. Moreover, the BOT recently established the Financial Market and Financial Institution Stability Subcommittee, chaired by the BOT deputy governor on the monetary stability, to enhance collaboration between the staffs in the monetary stability and in the financial system stability departments, as well as to monitor the built-up of vulnerabilities and sometimes justify the decision-making on macro-prudential policies.

The structure of each committee is designed to promote efficient and effective policy-making. First, in order to facilitate the flow of information among three committees, the BOT Governor acts as a chairperson in all the committees and the Deputy Governors are the members. Second, in order to ensure a balance of views, there is more outside representatives in the committees as compared to internal committee members. And finally, in order to ensure the regulatory coordination and consistency, some external members in the committee are heads of other regulatory agencies, whereas the BOT Governor is the member of the other committees. For example, while the SEC Secretary-General is designated as a director of the FIPC, the BOT Governor is designated as a commission member of the Board of SEC.

Furthermore, with support from the organisational structure of the BOT, the two groups, the Monetary Policy Group and the Financial Market Operations Group are assigned to work on monetary stability; another two groups, namely, the Financial Institutions Policy Group and the Supervision Group are assigned to work on financial system stability; and the Payment Systems Department,

within the Information Technology Group, is designated to work on payment stability.

Figure 2
Organisational Structure of the Bank of Thailand

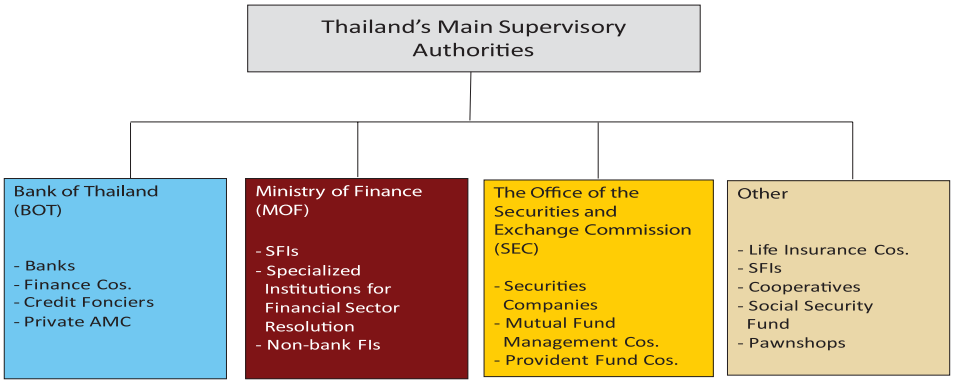


2.3 Regulations and International Compliance

As the Thai financial system remains bank-based consisting of Thai banks making up the majority, banking regulation and supervision is therefore vital for ensuring financial stability in Thailand. The BOT is the main financial regulator and most of commercial banks and financial institutions are under BOT supervision[3]. There are two other main supervisory authorities that are responsible for regulating the other financial institutions; namely, the Ministry of Finance (MOF), and the Securities Exchange Commission (SEC). Policy synergy and information sharing among the supervisory agencies is achieved through the membership participation of the BOT Governor in the relevant committees.

3. More information about the financial institutions in Thailand and related regulators and laws is presented in Appendix 9.2.

Figure 3
Thailand's Main Supervisory Authorities



Besides, in order to enhance the competency of its bank examiners in the area of risk-focused examinations, the BOT has developed its own school for examiners. The examiners are to meeting the following requirements to be qualified. They are to complete successfully six core training courses, pass a comprehensive knowledge examination, and acquire sufficient on-the-job experience. The six core training courses are the Basic Knowledge of Supervision, the Off-site Analysis, the Credit Risk Analysis, the Market and Liquidity Risk Analysis, the Banking Management, and the Examination Process.

To keep abreast of the international developments in the area of financial stability, Thailand participated in many international forums, such as the IMF, World Bank, BIS, and the EMEAP-MFSC. For example, Thailand participated in the IMF and World Bank joint programme – the Financial Sector Assessment Programme (FSAP) in 2007 which published the final report of its assessment in 2009. Other assessment programmes done by external organisations include the Data Dissemination and Corporate Governance Assessment among others.

3. Risks Identification and Crisis Prevention

3.1 Coordination between Macroeconomic Policymakers and Financial Regulators

Macroeconomic policymakers and the financial sector regulators collaborate in maintaining financial stability in Thailand. The focus of monetary policy is taking care of price stability in the real economy, whereas financial regulatory

and supervisory policy takes care of the stability of the financial system. If financial imbalances occur in some specific sectors, when necessary, macro-prudential measures are taken to address these imbalances.

3.1.1 Monetary Policy

With the abolition of the fixed exchange rate regime in July 1997, Thailand adopted the managed floating exchange rate which provided room for independent monetary policy. Thailand implemented the Inflation Targeting framework for monetary policy since May 2000. Under this framework, the monetary policy is designated to maintain price stability to ensure sustainable economic growth, with the core inflation targeted within a range of 0% -3.5% for each quarter. Later in 2008, the target range was changed to 0.5-3.0%. The target is set by the MPC, proposed to the Ministry of Finance, and approved by the Cabinet every year.

The BOT developed a macro-surveillance framework for the assessment of financial stability and incorporated the framework in the process of monetary policy formulation in July 2004. The MPC will review the financial stability conditions, guided by the framework of monitoring financial vulnerabilities in seven related sectors, and assess the impact of the monetary policy decision on these sectors. These sectors are household sector, real estate sector, non-financial corporate sector, system of financial institutions, government sector, financial markets, and external stability. The analysis is based on the balance sheet conditions of each sector and examines the risks to their income or profitability, liquidity risk, and debt serviceability[4]. The report on these vulnerabilities has been regularly published in the Inflation Report since the beginning of 2004.

3.1.2 Banking Regulation and Supervisory Policy

Lessons learned from the financial crisis in 1997 led to several developments in the bank regulatory and supervisory policy at the BOT purposed to promote the stability of the Thai financial system. Among other measures, they included the reformation of the financial sector through the Financial Sector Master Plan (FMSP) and amendments of the banking supervisory system.

The FMSP, the medium-term (5-10 years) plan formulated by the BOT, played a significant role in building up the fundamentals for the Thai financial sector. The aim of the FSMP Phase I, implemented during 2004 –2008, was to

4. Detailed indicators are presented in Appendix 9.3.

increase the efficiency of the financial sector, by reducing the number of small players and by eliminating regulatory arbitrage under the licensing rationalisation scheme and the "one presence" policy. As a result, the number of financial institutions under the supervision of the Bank of Thailand declined from 83 to about 37[5]. Presently, the FSMP Phase II, implemented for the period of 2010 – 2014 and designed to follow the FSMP Phase I, purposes to enhance the efficiency of the financial institution system through the adoption of three key measures: (1) Reduction of system-wide operating costs; (2) Promotion of competition and financial access; and (3) Strengthening of the financial infrastructure.[6]

The policy of financial institution regulation and supervision at the BOT follows a two-pronged approach: risk-based supervision and international compliance.

Risk-based supervision focuses on risk management, good corporate governance, and capital adequacy. It covers the five main risks (shown in Figure 4) and their impact on the banks' capital and operational status. Once the level of each type of risk is identified along with the bank's strategies in risk management, the aggregate risk is calculated. In addition, it would consider the potential risk going forward whether the current level of risk would increase or decrease, and assess the profitability and capital adequacy of that financial institution.

5. Watanagase (2006).

6. For more information please, refer to Bank of Thailand (2009), "The Financial Sector Master Plan Phase II", November. Or, it can be viewed at the website, <http://www.bot.or.th>

Figure 4
The Definition of Risks in Banking Supervision

Risk	Definition
Strategic risk	Risks occurring from inappropriate strategic planning and follow-ups, including controversies in policies, purposes, strategies, organisations, competitions, resources, plans, and environments, that affect capital revenues.
Credit risk	Risks occurring from customers who are unable to pay in pursuant to conditions and contracts because they have financial problems and are unable to pay or unwilling to pay, including risks caused from the inability of counterparties to pay off debts, consequently effecting revenues and capitals.
Market risk	Risks occurring from movements of interest rates, exchange rates, and price movement.
Liquidity risk	Risks that occurring from banks unable to pay off customers due to their inability to turn assets into cash, or from their inability to provide sufficient capital.
Operational risk	Risks that occurring from work processes, human resources, systems and external events that may cause damages and problems to operations, affecting revenues and capital.

Consolidated supervision is also applied in Thailand's banking supervisory system in 2008 to address the importance of credit risk of banks to some specific sector[7]. The single lending limit and the related lending restrictions are imposed to the loan approval by banks to contain the credit risk**.** The importance of the linkages between the real economy and the financial sector is receiving increasing attention in recent studies done for Thailand. The stress testing of the system of financial institutions has been applied in the supervisory process.

Lastly, to comply with the international standards, Thailand adopted fully the Pillar I framework of the Basel Capital Accord in 2008 for commercial banks under the BOT supervision, and plans to adopt the Pillars II and III frameworks by 2011.

The implementation of these supervisory policies is well supported by the recent enactments of the Financial Institutions Business Act (FIBA) and the Deposit Protection Agency Act in 2008 as well as amendments to the BOT Act.

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7. For more information, please refer to the BOT Notification No. 37-2551, or access via website: <http://www2.bot.or.th/fipcs/Documents/FPG/2551/EngPDF/25510327.pdf>

For example, the FIBA empowers the BOT to be the sole regulator of commercial banks and grants the BOT authority to conduct consolidated supervision and legal backing to ensure timely corrective action (IMF, 2009).

3.1.3 Macro-prudential Policy

The role of macro-prudential policy in Thailand has increased after the 1997 crisis especially its role in taking care of the asset price misalignments and financial imbalances that are beyond the capability of either monetary policy or regular micro-prudential policy. This is because interest rate policy is probably too blunt to be a "corrective" tool for financial stability, given that to materially impact asset prices, a substantial increase in the interest rate is required. Using the policy interest rate to actively steer asset prices would therefore have adverse consequences on the economy as a whole. Instead, the monetary policy should be use as a "preventive" tool for financial stability, that is, not to allow monetary policy to sow the seed of asset price bubbles[8].

Since 2003, macro-prudential policies have been occasionally implemented. For example, to prevent the built-up of asset price bubble in the property sector in 2003, as signaled by the acceleration of high-end real estate prices and mortgage lending by commercial banks, a ceiling on the loan-to-value (LTV) ratio for residential property with the transaction price exceeding 10 million baht was introduced. Later in 2004, to prevent the credit-card bubbles as the credit-card loans rose significantly, the minimum income requirement was imposed on the approval of credit card to each customer. Then in 2006, when the economy was robust and the financial institutions in strong standing, the new international accounting standard, IAS 39, was implemented for the financial institutions to set aside the loan-loss provision during the good time. Although this had an adverse impact on banks during the transition period, the extra provisioning later provided cushion for the Thai banks during last year's economic recession. In 2010, rules for calculating risk weights on residential property loans with a certain level of the LTV ratio was applied to mitigate the risk of oversupply in some segments of residential property, namely, condominiums and single-detached houses.

There are on-going discussions about macro-prudential measures concerning the absence of clear definitions, the urgency of the moment, and the measurement of their effectiveness. These measures are operated most of the time on ad-

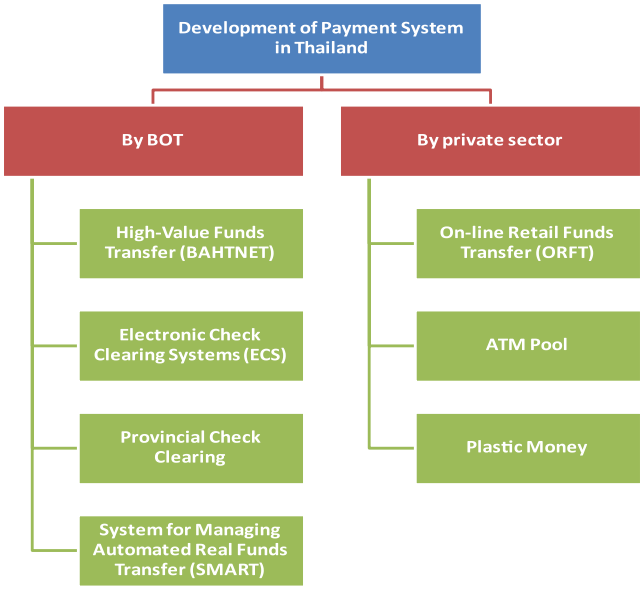
8. Watanagase, Tarisa (2010), "The Road Ahead for Central Banks – Meeting New Challenges to Financial Stability", Luncheon talk at the Foreign Correspondents Club of Thailand, Bangkok, 20 July.

hoc basis, and not on rule basis. Therefore, judgments are involved and it requires data and information adequacy.

3.1.4 Payment Stability Policy

To ensure the smooth functioning of the financial and monetary systems, the BOT has assumed a leading role in modernising the Thai payment systems with the aim of advancing them to a higher stage of both safety and efficiency, compliant with the dynamic environment, particularly in terms of user's needs and behaviours as well as the international standards, and in keeping with with the advances in the information and communications technologies. The strategic plans that dealt with these challenges took shape in the Payment Systems Roadmap 2004 and the Payment Systems Roadmap 2010. While both roadmaps were formulated and disseminated by the BOT, they involved the cooperation among the relevant parties in the government and the private sectors.

Figure 5
Development of Payment System in Thailand



The Payment Systems Roadmap 2004 was an initial effort to establish a national payment roadmap. It has laid the solid foundations for many payment system developments in Thailand, such as the establishment of Interbank Transaction Management and Exchange (ITMX) system, ASEANpay system for retail funds transfer among ASEAN countries and cooperation arena for national payment systems development among payment providers, and the drafting of payment business regulatory laws.[9] More recently, the Payment Systems Roadmap 2010, a 4-years plan, highlights the collaboration among government and private enterprises in driving for greater usage of electronic payments with efficient and secured services and fair fees under effective enforcement of regulations.

3.2 Policy Communication

Policy communication is an important aspect in enhancing transparency and in increasing policy effectiveness. The publications related to the financial stability assessment are: The quarterly Inflation Report, the annual Supervision Report, and the annual Payment System Report that help express the views of policy implemented by the BOT in preserving financial stability.

3.3 Bank Crisis Solution

A management framework is required to facilitate prompt and coordinated action among the relevant authorities in the event of a crisis. The BOT has prepared a contingency plan for Thailand to deal with systemic banking crisis, as well as a continuity plan for disaster events. In particular, the BOT has issued guidance to the banks to prepare their own disaster recovery plans and business continuity plans. The Crisis Management Committee (CMC), chaired by the BOT Governor, is designated to act as the central command to coordinate and manage banking crisis resolution. The BOT has established clear guidelines governing the use of emergency credit to be lent to banks perceived as solvent but illiquid. A working group has also been established to arrange scenarios for testing once every year, and to provide feedback for improvements in the contingency plans (IMF, 2009).

9. Bank of Thailand (2007), "Payment System Roadmap 2010." An unofficial translation, September.

4. Supporting Tools for Monitoring Financial Stability

The important part in promoting financial stability and supporting the policy on financial stability is the identification of risks or imbalances that are building up in the financial system that can potentially lead to instability. There is no one best indicator or model that contains ample information for policy making on financial stability. Therefore, the BOT has been developing a list of tools for this task, ranging from indicator base to model base. Following the European Central Bank's Financial Stability Review (June 2010), this study divides the analytical models and tools concerning the importance of systemic risk identification and assessment into four types, namely: (1) Coincident indicators; (2) Early-warning models; (3) Macro-stress-testing models; and (4) Contagion and spillover models. The details how each model addresses the financial stability risks in Thailand are described as follow:

4.1 Coincident Indicators of Financial Stability

The aim of coincident indicators is to measure the current state of instability and monitor the risks in the Thai financial system. Indicators categorised in this group are the Financial Soundness Indicators and Thailand's Financial Stress Index.

4.1.1 Financial Soundness Indicators (Macro-prudential Indicators)

As mentioned in the previous section, the BOT extended the set of Financial Soundness Indicators suggested by the IMF to include six other economic sectors that may pose some risks and vulnerability to the financial system stability. The detailed indicators are presented in the Appendix 9.3.

4.1.2 Thailand's Financial Stress Index (T-FSI)

As described in the Inflation Report, April 2010 issue, the T-FSI is a summarised statistic constructed from an aggregation of selected monthly financial data series dated back to January 1996 that reflect the stress in six important areas normalised by their standard deviations. The standardised series are grouped into three market segments for the calculation of three sub-indices for financial institutions, the securities market, and the foreign exchange market. The T-FSI is then calculated as a weighted average of the three sub-indices to reflect the structure of the Thai financial system, with the financial institution sub-index receiving the largest weight, followed by the securities market sub-index and the foreign exchange market sub-index. For simplicity, the index is re-

scaled to range from 0 to 100, with a higher value indicating a higher level of stress.

Figure 6
Components of Thailand's Financial Stress Index

Data	Description	Meaning and Purpose
Bank index beta	Covariance between the banking stock index and the overall stock market index relative to overall market volatility	Volatility/risk in the banking sector relative to that in the overall market
Inverted term spreads	Difference between short-term (3-month) and long-term (10-year) yields on government issued securities	A proxy of banks' profitability given economic outlook and ability to issue short-term bonds or deposits for long-term investments or loans; also a proxy of banks' maturity risk
Corporate bond spreads	Weighted average between AA and BBB corporate bond spreads	A proxy of banks' corporate-sector credit risk
Stock index volatility	Volatility derived from GARCH (1,1)	Financial market risk and uncertainty due to stock market volatility
Government bond price index volatility	Volatility derived from GARCH (1,1)	Financial market risk and uncertainty due to bond market volatility
Exchange rate volatility	Volatility derived from GARCH (1,1) and implied volatility	Financial market risk and uncertainty due to foreign exchange volatility

4.2 Leading Indicators and Early Warning Signal Models

The objective of early warning indicators is to derive indications about the likelihood and severity of systemic events and crises happening in the future.

4.2.1 Leading Indicators of Financial Crisis

Lessons from the past help us identify some direct indicators that can predict the financial crises. Those indicators usually are financial market data, such as asset price volatilities, debt yield spread, credit default swaps, and the forward-looking components of T-FSI, such as the implied volatility of exchange rate and stock index. Moreover, the macroeconomic indicators may also indicate the imbalances. For example, a large deviation from the data's trend or from its fundamental value indicates the potential risk in that sector and others for the period ahead.

4.2.2 Calculation of Default Probability of Non-financial Corporate Sector

In calculating the probability of default of the non-financial corporate sector, there are two key models: a probit model and a contingent claims approach (CCA) model.

First, a random-effect probit model is used to estimate the probability of default (PD) of the non-financial corporate sector by combining their key financial ratios which indicate sources of vulnerability into a comprehensive indicator representing the PD. The details are described in the Box Analysis contained in the Inflation Report, October 2008 issue. The estimation applied the data from the financial statements of the non-financial corporations listed on the Stock Exchange of Thailand (SET) including the following key financial ratios: interest coverage ratio (ICR), operating profit margin (OPM), debt-to-asset ratio (DA), average cost of debt (Kd), and current ratio (CR). The model then is specified as follows:

$$y^*_{it} = a \cdot OPM_{it} + b \cdot DA_{it} + c \cdot Kd_{it} + d \cdot CR_{it} + \mu + \varepsilon_{it},$$

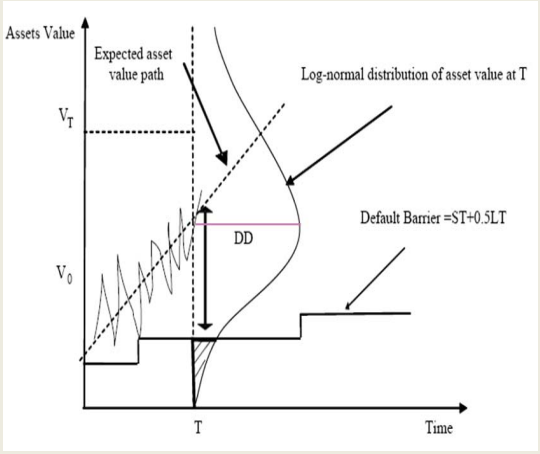
where y^*_{it} denotes the latent default status of firm i at time t and corresponds to the observed variable, y_{it}, which equals 1 if the ICR is less than 1 for four consecutive quarters (i.e., a firm does not have sufficient income to repay interest on loans) and equal 0 in other cases; μ is the random-effect coefficient while the error term, ε_{it}, is assumed to be distributed normally.

A statistical test found that the calculated PD leads the non-performing loan ratio by 3 quarters. Therefore, the PD obtained from this qualitative choice model can be used as an indicator for corporate sector vulnerability as well as for risk to financial institutions.

Second, a CCA model is based on the assumption that a firm will go bankrupt when its asset value falls below its debt level, and the default probability of the firm will increase if its asset value approaches that particular debt value. As described in the Box Analysis of the Inflation Report, October 2009, the PD (the shaded area in Figure 7) is calculated as the difference between the asset value and the level of debts to pay back in the future, namely, the distress barrier. The future market values of asset and its volatility are obtained from the movements of its stock price and option-implied volatility according to an

option price model[10] which assumed the log-normal distribution. The distress barrier is the minimum debt burden to pay back one year from today and is assumed to be equal to the sum of the entire book value of the short-term debts and one-half of the book value of long-term debt.

Figure 7
Concept of Contingent Claims Approach (CCA)
to Measurement of Probability of Default



Source: Modified from www.moodyskmv.com

One should note that the CCA model is subject to certain assumptions, for instance, the market with perfect competition and information, and fundamental-driven stock prices rather than speculation-driven. Besides, the CCA model requires stock prices in calculating the future value of asset. It can therefore be applied only to listed companies in stock exchange market and used to assess the vulnerability of large firms while leaving out the small- and medium-sized firms.

10. The Merton model for option pricing that formulates the relationship between equity value and asset value in terms of an implicit call option, see details in Garpen et al., (2004).

4.2.3 Early Warning System (EWS) Model

Extended from the signaling approach pioneered by Kamisky and Reinhart (1999), a composite leading indicator for predicting currency crisis in Thailand is calculated with the help from the Vulnerability Indicators and Early Warning System (VIEWS) software provided by the Asian Development Bank (ADB). The VIEWS features two types of crises; currency crisis and banking crisis. The process starts from gathering leading indicators that cover six relevant sectors, specifically: current account, capital account, financial sector, fiscal sector, real sector, and global economy. Then, the criteria of each type of crises are imposed. For currency crisis, they are the movements of exchange rate more than 3 times of its standard deviation, and the leading periods is 24 months before the currency crisis, whereas banking crisis is defined by the events. Using the VIEWS, it selects 45 out of all 55 leading indicators for Thailand that provide the less-than-one Noise-to-Signal Ratio (NSR). A composite index is then constructed, weighting by either reversed NSR or conditional probability of crisis, in which the high value of index means a high probability of the crisis. Here, the cut-off probability for signaling the crises is required and present the index on a heat chart background.

Figure 8
Noise-to-Signal Ratio Calculation

For each indicator	Crisis	No crisis
Signal	A (count of true alarms)	B (count of false alarms)
No signal	C (count of missed alarms)	D (count of correct no alarms)
Noise-to-signal ratio	[B/(B+D)] / [A/(A+C)]	
Conditional probability of crisis	[A/(A+C)]	

Nevertheless, there are some concerns over the EWS. One is that it comprises a lot of judgments, in particular, the definition of crisis, while there is argument that the causes of each crisis are different. The crisis thresholds are also calculated from historical data, therefore it may not be able to signal a future crisis, if there is any recent structural shift in the economy or financial system.

4.3 Stress-testing Models

Understanding the linkage between the financial system and the macroeconomy is important in evaluating financial stability. The objective of macro-stress-testing models is to assess the resilience of the financial system to *'severe but plausible'* aggregate shocks and to examine the propagation of the shock. Like models in macroeconomic analysis, an economy, or, in this case, a financial system, would be more stable with respect to such an external shock if, over time, the simulation indicated a declining multiplier (Goodhart, 2006). The potential shocks assumed in simulating the type of models are changes in interest rates, exchange rates, oil prices, asset prices, and economic condition, either domestic or abroad.

4.3.1 Stress-testing Models for Commercial Bank System

While the micro-stress-testing models are incorporated into the process of banking supervision by the BOT to assess the impact of the macroeconomic shock on individual financial institutions, the macro-stress-testing model is applied to assess the impact on the Thai broad banking system. The key input for macro-stress-test is an adverse macroeconomic downturn scenario, which is based on the hypothetical grounds or is estimated from the tail density forecasts of the BOT macroeconomic projections. And the focus in testing the healthiness of the banking system is on the absence of liquidity and the existence of high leverage because they probably amplify the market effect of external shocks.

The first attempt in developing the stress-testing models started in 2006 in the joint project between the BOT and the FSAP team. Results from the tests were published in the IMF's FSAP Report in 2008. The utilised models include both commercial banks' internal models and the top-down models developed by the BOT and FSAP team. The tests were focused on the resilience of the eight largest Thailand commercial banks which accounted for 88% of banking assets as at end-2006 to the severe but possible shocks on hypothetical ground. The analysis covered the impact of macroeconomic slowdown on the non-performing loans, and the impact of changes in interest rate and exchange rate on banks' financial assets and capital. Moreover, the test of "bank run" was included to assess the influence on banks' liquidity. In summary, the results showed that Thai banks are vulnerable to a sharp domestic economic slowdown, especially from credit risk. Liquidity risk was found in a few banks, whereas market and contagion risks were more modest, largely reflecting the banks' limited holdings of securities, use of hedging instruments, and low interbank and international exposures.

4.3.2 Satellite Non-financial Corporate and Household Sector Models of the BOT Macro-econometric Model (BOTMM)

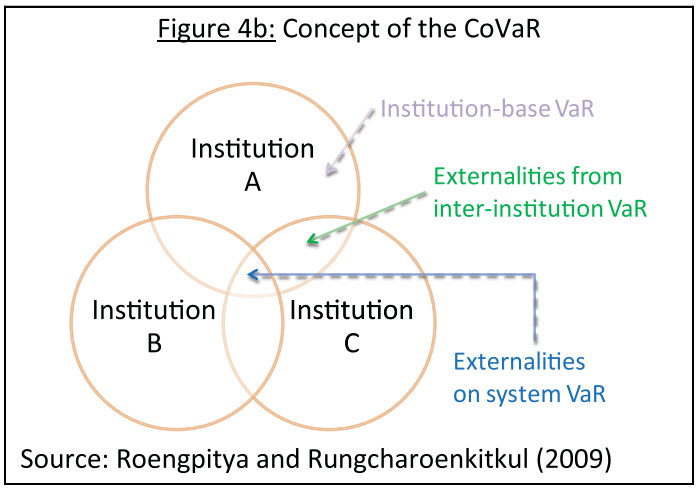
Although the severe but plausible hypothetical shocks have not been practically tested, the satellite models of the core BOT's macroeconomic model (BOT Macro-econometric Model – BOTMM) were developed by the BOT to estimate the sensitivity of the non-financial corporate sector and households to some specified macroeconomic and financial shocks, and policy shocks. The model structure is based on the interconnected balance sheets of each sector in the economic and financial system. Econometric method is applied to estimate the equations in the system, and various scenarios, such as shocks to GDP and policy interest rate, are assumed to estimate the impacts on household and corporate income and their financial ratios.

4.4 Contagion and Spillover Model

Preventing the *'too interconnected to fail'* problem is another key task in promoting financial stability, because the healthiness of each individual financial institution does not guarantee resilience of the overall financial system. The *Conditional Value-at-Risk* (CoVaR) introduced by Adrian and Brunnermier (2008) is an example of systemic risk quantification that tries to analyse the transmission of originally more limited financial shocks across intermediaries and markets.

For Thailand, Roengpitya and Rungcharoenkitkul (2009) utilised the cross-sectional analysis of CoVaR to measure the systemic correlation among six major Thai commercial banks in the Thai financial system over the period of Q2:1996 - Q1:2009. The concept is that, during the crisis, the distressed institution will also increase other institutions' values at risk as well as the system value-at-risk (VaR). Typically, VaR is the threshold value below which the historical market returns do not fall by more than some pre-specified frequency or level of confidence. The CoVar then is the system's VaR conditional upon the event that a specific bank has come under stress (i.e., the bank's market return reaches its VaR level). Thus, it measures the risk spillover among all the financial institutions in the system. Lastly, the difference between CoVaR and the unconditional system's VaR, or the ΔCoVaR, captures the externality that the underlying bank imposes on the banking system.

Figure 9
Concept of the CoVaR



Source: Roengpitya and Rungcharoenkitkul (2009)

5. Challenges in Promoting Financial Stability

Even though many central banks in both advanced and developing countries have stronger awareness of financial stability and have developed policy framework as well as a lot of analytical tools, there are immediate challenges that are inevitable for policymakers to deal with when making policies to promote financial stability.

First, the definition of financial stability remains unclear and hard to quantify. IMF (2004) defines financial stability as a broad concept that it is the ability of the financial system to facilitate and enhance economic processes, and to limit, contain, and deal with the emergence of imbalances before they constitute a threat to itself or to the economic process. At the same time, Borio and Drehmann (2009) define financial instability, or the converse of financial stability, as a situation in which normal-sized shocks to the financial system are sufficient to produce financial distress/crises and these shocks could originate either in the real economy or the financial system itself. And financial distress/crisis is an event in which substantial losses by financial institutions and/or their failure cause, or threaten to cause, serious dislocations to the real economy, measured in terms of output foregone.

The second challenge is data availability and reliability. Obviously, the availability of data is important in assessing the financial imbalances and making policy decision on financial stability. The lack of data can occur in developed countries with advanced financial markets and in developing countries with less-sophisticated financial systems, but in different ways. For the developed countries, the rather complicated relationship between the participants in the financial system makes it harder to have all the needed data, such as the data on inter-institution exposures for assessing the interconnectedness (IMF, BIS, and FSB, 2009). For the developing countries, the data systems are less-matured and the cost of reporting data that is borne by the reporting private firms have resulted in data deficiency. Some other difficulties related to data availability are, scattered data among authorities which is needed to be gathered, and the entity-level data that indicate financial stress of individual firms usually have confidentiality attached. Moreover, once the data is available, the quality and reliability of the data is also significant. This may be due to some reasons, such as the different standards in data collecting which makes it harder to compare between two different sources of data, less-matured financial markets which makes it harder to rely on the information extracted from financial market to gauge the market sentiment or risk appetite, etc.

Third, the complexity of the interrelationship in the financial system is the most important challenge in assessing the state of financial soundness. There are complex interlinks between financial institutions and financial markets, as well as between domestic and the global economies. Small-sized imbalances may end up with financial crisis and economic recession. Therefore, understanding shock propagation is the key in making policy to maintain financial stability. Financial innovations and market deepening also make it more complicated. The complication of derivatives market makes it difficult to trace all the relationship and the risk that may transfer from one investor to other counterparties. Moreover, past financial crisis may induce changes in market behavior, just as new regulations may likewise do. Changes in public policies, such as monetary policy (either intentionally or unintentionally) as well as changes in regulatory structure, e.g. at the Basel Committee can affect financial stability. In particular, the forthcoming regulatory changes, such as the Basel III regulations which are tougher than the Basel II, can affect the financial position of financial institutions in the adjusting period.

Furthermore, referring to Thailand's current framework that there are a number of financial institutions and market participants that operate under different regulatory umbrellas, it may cause the assessment of systemic vulnerabilities more difficult. Because the imbalances from sectors outside the same regulatory

umbrella may be missed and become potential risks to a broad financial system. Another challenge is the regulatory arbitrage that may arise from the different prudential standards between regulated financial institutions, for example, between commercial banks, government financed SFIs, and insurance companies.

6. Recommendations and Policy Implications

Dealing with these challenges is inevitable for policymakers assessing financial stability. There are three key components in the process of policy formulation: (1) Monitoring the built-up of risks; (2) Assessing the potential costs of these risks to the financial system and economy; and (3) Choosing appropriate policy to be implemented.

First is using judgments from expertise. Even though information and data are collected and analytical models are developed to meet objectives at some extent, judgments are still required. This is due to the complexity of relationship in the financial system. Non-linearity of the consequence of financial instability is also hard to measure. Besides, every model has limitations and a lot of judgment is involved in the building of each model, for example, selection of estimation techniques or aggregation method in constructing a summarised data series. Furthermore, judgment is also needed in the interpretation of results which has to be done with care as to avoid causing panic in the market.

Second, sharing knowledge and information between macroeconomists and financial regulators, and between policymakers and market participants is necessary. The data is usually dispersed among these market participants and, sometimes, regulators. One important thing in conducting policies to preserve the financial stability is to have the needed information in a timely manner. Once the needed information is on hand, interpreting the data and assessing the vulnerabilities are tasks that follow. While Thailand has the advantage of having the authorisation in banking supervision and accountability for monetary stability under the same roof at the BOT, there remains the knowledge gap between the banking supervisors who have strengths in the area of banking behaviour and regulations, and economists who have strengths in macroeconomic analysis. The sharing of information between these two groups of experts would help support the policy decision for it to be more effective and efficient. Moreover, other than policymakers, knowledge and information should be acquired from market analysts and experts as well as from academics in the universities, because these players may have data, information, and knowledge that policymakers need.

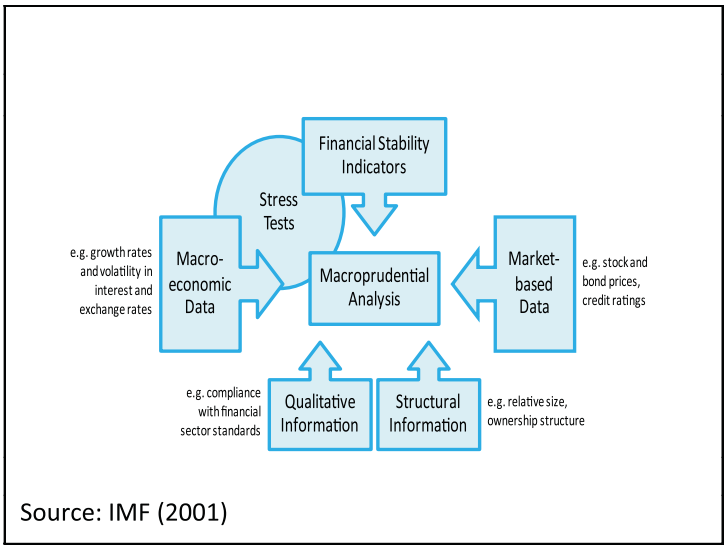
Third is applying macro surveillance framework. IMF (2001) suggests a ground for system of assessing financial stability as part of the macro-prudential analysis. It requires effective analytical tools, market-based data, macroeconomic data, structural information, and qualitative information in the system. Since there is no one best single indicator to measure financial stability or instability, a macro surveillance framework with well-adopted quantitative methodologies and techniques, as currently being used by the MPC, can offer comprehensive views of the interrelationship between sectors in the economy to give us better understanding of the linkages among the participants in the system.

Although Thailand's policy framework and analytical tools on financial stability are well developed far beyond the status during the Asian crisis in 1997, some work for further improvement remains.

First, a legal mandate and accountability can help support the policy effectiveness. Importantly, it can improve the data and information gathering system. A legal mandate empowers an authority responsible for conducting policy on financial stability to acquire the needed data that is currently dispersed among the regulators, financial institutions, and government authorities. Ample information helps the work of risk monitoring, especially in systemic risk assessment, being more comprehensive and policymakers can decide on what policy to implement in a timely manner. However, it is still open for discussion who should be given this mandate and how to assess the performance of this authority, because the operational target of policy on financial stability is difficult to quantify,

Second is policy collaboration. Although the BOT is not vested with an explicit legal mandate, it plays a dominant role in preserving Thailand's financial stability at present. However, the fact that balance sheets of several sectors in the financial system are interlinked and there are some financial institutions that are regulated by different regulators with different rules, makes it necessary for coordination among other policymakers. The distresses may arise in one sector and spread to other sectors, therefore, the minimum requirement is making each sector resilient enough to withstand the shocks, both internal shock and shock spread from other sectors.

Figure 10
Components of Macro-prudential Analysis



Source: IMF (001)

Third is policy communication with regard to the Thai Financial Stability Report. It is worthwhile for the BOT to combine the financial stability aspects from the currently published Inflation Report and Supervision Report and to publish an inclusive report to enhance situational awareness of financial stability. A communication policy helps establish the credibility of policymakers and regulators. It is feasible for the BOT to do this as BOT is expected to shoulder the responsibility of safeguarding financial stability for Thailand and given that most of information and resource persons congregate at the BOT. In the Financial Stability Report, it should provide assessment of the soundness and efficiency of the financial system, update the public on current conditions, report newly-introduced measures related to the financial stability and address the potential built-up of financial vulnerabilities in some sectors.

7. Conclusions

After the Asian financial crisis in 1997, Thailand accomplished numerous improvements in the field of financial stability, including the application of analytical tools using advanced methodologies, a macro-surveillance framework, and policy framework, which included monetary policy under the Inflation Targeting Framework and improvement in banking supervision, as well as the adoption of

international standards in banking regulations. Nonetheless, some obstacles remain, such as the difficulty in defining and measuring financial stability, availability and reliability of data, and complexity of relationship in the financial system. It is inevitable for the policymakers to deal with these difficulties. Judgments are required in interpreting the data and results. Knowledge and information sharing between policymakers and market participants is necessary, with some help from the macro-surveillance framework in providing a comprehensive view for assessing the financial stability. Moreover, it is important for policymakers to identify the systemic risk, both in terms of cyclical dimension and cross-sectional dimension, including the risks emerging from domestic and external sources due to the forces of financial globalisation, and network risk emanating from one country that could spread out to other countries.

The key elements in formulating policy to ensure financial stability are identifying risks that are building up, assessing the potential costs, and choosing the appropriate policy to implement. Although the first two elements are mostly addressed by the advancement in tools that are developed and a macro-surveillance framework, making policy decision to preserve the financial stability is still a hard part. Policymakers need to answer the policy questions, such as what, when, and how policy is to be implemented. And it requires the coordination between policymakers, especially when there is no one single authority that has explicit mandate on the financial stability and financial institutions are under the supervision of different supervisory units.

The Financial Stability Report, recommended in Section 6, can be used as a channel of communication to enhance transparency and effectiveness of the policy on financial stability.

Abbreviations

ADB	Asian Development Bank
AMC	Asset Management Company
ASEAN	Association of Southeast Asian Nations
BIS	Bank for International Settlements
BOT	Bank of Thailand
BOTMM	Bank of Thailand Macroeconometric Model
CCA	Contingent Claims Approach
CMC	Crisis Management Committee
CoVaR	Conditional Value-at-Risk
CR	Current Ratio
DA	Debt-to-asset
ECB	European Central Bank
EMEAP	Executives' Meeting of East Asia-Pacific Central Banks
EWS	Early Warning System
FIBA	Financial Institution Business Act
FIPC	Financial Institution Policy Committee
FSAP	Financial Sector Assessment Program
FSMP	Financial Sector Master Plan
FSB	Financial Stability Board
GDP	Gross Domestic Product
GARCH	Generalized Auto Regressive Conditional Heteroskedastics
IAS	International Accounting Standard
ICR	Interest Coverage Ratio
IMF	International Monetary Fund
ITMX	Interbank Transaction Management and Exchange
Kd	Average Cost of Debt
LTV	Loan-to-value
MAI	Market for Alternative Investment
MFSC	Monetary and Financial Stability Committee
MOF	Ministry of Finance
MPC	Monetary Policy Committee
NIM	Net Interest Margin

NPL	Non-performing loan
NSR	Noise-to-signal Ratio
OPM	Operating Profit Margin
PD	Probability of Default
PSC	Payment System Committee
ROA	Return on Asset
SEC	Securities and Exchange Commission
SET	Stock Exchange of Thailand
SFIs	Specialised Financial Institutions
SMC	Sukhumvit Asset Management Company
TAMC	Thai Asset Management Company
T-FSI	Thailand Financial Stress Index
VaR	Value-at-Risk
VIEWS	Vulnerability Indicators and Early Warning System

References

Adrian, Tobias and Brunnermier, Markus K., (2008), "CoVaR", FRB NY Staff Reports No. 348, September.

Bank of Thailand, (2009), "The Financial Sector Master Plan Phase II", November.

Bank of Thailand, (2010), BIS Questionnaire for Study Group on Financial Stability and Central Bank Governance, Internal-use Publication, April.

Borio, Claudio and Drehmann, Mathias, (2009), "Towards an Operational Framework for Financial Stability: "Fuzzy" Measurement and its Consequences," *BIS Working Paper* No. 284, June.

Disyatat, Piti and Nakornthab, Don, (2003), "The Changing Nature of Financial Structure in Thailand and Implications for Policy," *Bank of Thailand Discussion Paper*, November.

Gapen, Michael T.; Gray, Dale F.; Xiao, Yingbin; and Lim, Cheng Hoon, (2004), "The Contingent Claims Approach to Corporate Vulnerability Analysis: Estimating Default Risk and Economy-wide Risk Transfer", *IMF Working Paper No*. WP 04/121, July.

Goodhart, C.A.E., (2006), "A Framework for Assessing Financial Stability", *Journal of Banking and Finance*, July, pp. 3415-3422.

IMF, (2001), "Macroprudential Analysis: Selected Aspects", *IMF Background Paper,* June.

IMF, (2004), "Towards a Framework for Safeguarding Financial Stability", *IMF Working Paper,* June.

IMF, (2008), "Thailand: Financial System Stability Assessment," IMF Country Report No.09/147, May, 2008.

IMF, BIS, and FSB, (2009), "Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations," Report to the G-20 Finance Ministers and Central Governors, October, 2009.

Roengpitya, Rungporn and Rungcharoenkitkul, Phurichai, (2009), "Measuring Systemic Risk and Financial Linkages in the Thai Banking System", *Bank of Thailand Discussion Paper*, October, 2009.

Watanagase, Tarisa, (2006), "Maintaining Financial Stability: The Experience of Thailand," in "The Banking System in Emerging Economies: How Much Progress Has Been Made?", *BIS Paper* No. 28, August 2006, pp. 347-361.

Watanagase, Tarisa, (2010), "The Road Ahead for Central Banks – Meeting New Challenges to Financial Stability," Luncheon talk at the Foreign Correspondents Club of Thailand, Bangkok, 20 July.

Appendix
Chronology of Incidents/Measures during the 1997 Economic and Financial Crisis in Thailand:

Period	Events / Crisis Resolutions
May 1996	- 1st Bank run on BBC and intervention (beginning of May 96) - Baht was being attacked a number of times
1997	- 2nd Bank run on 58 finance companies and intervention (3 Mar – Aug 97) - Baht was floated from 25 to 45 baht per US$ (Dec 97) - Issued blanket guarantee for depositors and creditors (5 Aug 97) - Set up FRA and AMC (National AMC) to deal with 58 finance companies (56 closed down + 2 survived). A year later FRA started to sell assets. - Intervened on BMB (Nov 97)
1998 - 1999	- Intervened in 5 banks and 7 finance companies (Feb 98 – Jul 99) - Introduced "The 14 August 1998 packages" for mergers / acquisitions and government's capital support scheme. - Recapitalised intervened FIs. - Established the Corporate Debt Restructuring Advisory Committee (CDRAC). - Issued an Emergency Decree to set up Private AMC to accelerate restructuring of FIs. - Amended Bankruptcy Act and approved for the setting of the Central Bankruptcy Court in 1999. - Issued new loan classification, provisioning and interest recognition rules (new 6 categories and new interest recognition). - Allowed the use of hybrid capital instruments to recapitalise. - Issued policies and measures to encourage debt restructuring.
June 2001	- Setting up of TAMC
2002 - 2004	- Amended definition of NPLs and regulation on loan classification and provisioning. - Established a credit bureau. - Privatized intervened FIs (2 Banks).
2005 - 2007	- The Cabinet approved the merger of the National AMC and the Bangkok Commercial Asset Management Co., Ltd. (BAM) FIDF in order to purchase NPLs and NPA from FIs.
1998 - 2002	Recapitalization of State-Owned Banks by the Authorities up to 716,929 million baht (by direct equity injection, debt/equity conversion, and reversal of reserves from NPL transfer).
2002 - 2007	Tier 1 recapitalisation of banks up to 253,018 million baht (by public and private placement, conversion of convertible instruments, and issuance of hybrid instruments).

Source: Vanikkul, Krirk, (2007), "Thailand's Experience of Banking and Financial Sector Reform after the Crisis," 17 December, viewed at website: <http://www.fsa.go.jp/frtc/kenkyu/event/20080404-1/02e.pdf>

Financial Institutions in Thailand and Related Regulators and Laws:

	Financial Institutions	Regulators	Related Law
1	The Bank of Thailand	Ministry of Finance	Bank of Thailand Act B.E.2485 and amended
2	Commercial Banks	Bank of Thailand	Financial Institutions Businesses Act B.E.2551
3	Foreign Bank branches		
4	Subsidiary		
5	Retail Banks		
6	Finance Companies	Bank of Thailand	Financial Institutions Businesses Act B.E.2551
7	Credit Foncier Companies		
8	The Government Savings Bank	Ministry of Finance/ Bank of Thailand	Government Savings Bank Act, B.E.2489
9	The Bank for Agriculture and Agricultural Cooperatives (BAAC)	Ministry of Finance/ Bank of Thailand	The Bank for Agriculture and Agricultural Cooperatives Act, B.E.2509
10	The Government Housing Bank	Ministry of Finance/ Bank of Thailand	Government Housing Bank Act, B.E.2496
11	The Export - Import Bank of Thailand (EXIM-Bank)	Ministry of Finance/ Bank of Thailand	The Export-Import Bank of Thailand Act, B.E.2536
12	Small and Medium Enterprise Development Bank of Thailand (SME Bank)	Ministry of Finance/ Bank of Thailand/ Ministry of Industry	Small and Medium Enterprise Development Bank of Thailand Act, B.E. 2545
13	Islamic Bank of Thailand	Ministry of Finance/ Bank of Thailand	Islamic Bank of Thailand Act, B.E.2545
14	The Small Industry Credit Guarantee Corporation (SICGC)	Ministry of Finance/ Ministry of Industry	The Small Industry Credit Guarantee Corporation Act, B.E. 2534
15	Secondary Mortgage Corporation (SMC)	Ministry of Finance/ Bank of Thailand	Emergency Decree on Secondary Mortgage Corporation B.E.2540
16	Thai Asset Management Corporation (TAMC)	Ministry of Finance	Emergency Decree on the Thai Asset Management Corporation B.E.2544
17	Asset Management Companies	Ministry of Finance/ Bank of Thailand	Emergency Decree on the Asset Management Company B.E.2541
18	Money Changers	Ministry of Finance/ Bank of Thailand	Exchange Control Act, B.E.2485
19	Securities Companies	Securities and Exchange Commission	The Securities and Exchange Act, B.E.2535
20	Mutual Fund Management Companies		
21	Life Insurance Companies	Ministry of Finance/ Office of Insurance Commission	Life Insurance Act, B.E.2535 and amended
22	Agricultural Cooperatives	The Department of Cooperatives Promotion and the Department of	Cooperative Act, B.E.2511 and amended
23	Savings Cooperatives		

	Financial Institutions	Regulators	Related Law
		Cooperative Auditing, Ministry of Agriculture and Cooperatives	
24	Provident Fund	Securities and Exchange Commission	Provident Fund Act, B.E. 2530
25	Social Security Fund	Ministry of Labour	Social Security Act, B.E.2533
26	Pawnshops	Ministry of Interior	Pawn-shop Act, B.E.2505 and amended

Source: http://www.bot.or.th

Sectoral Indicators for Assessing Risks and Vulnerabilities to Financial Stability

Sectors	Indicators
1. Household sector	
1.1 Risk to income	- Unemployment rate
1.2 Debt serviceability	- Household NPL and delinquency ratios
	- Consumer loans
	- Mortgage loans
	- Credit card loans
	- Personal loans
2. Real estate sector	
2.1 House price index	- Single-detached house (including land)
	- Townhouse (including land)
	- Land
3. Non-financial corporate sector	
3.1 Profitability	- Operating profit margin
3.2 Liquidity	- Debt to equity
	- Interest coverage ratio
	- Current ratio
3.3 Debt serviceability	- Corporate NPL ratio
	- Corporate delinquency ratio
4. Financial institutions	
4.1 Capital adequacy	- Regulatory capital to risk-weighted assets
	- Regulatory Tier 1 capital to risk-weighted assets
4.2 Asset quality	- Non-performing loans to total loans
	- 1-3 past due loans to total loans (delinquency ratio)
4.3 Earnings and profitability	- Return on assets (ROA)
	- Interest margin to gross income
	- Non-interest expenses to gross income
4.4 Liquidity	- Liquid assets to total assets
	- Liquid assets to short-term liabilities
5. Government sector	
5.1 Debt sustainability	- Public debt to GDP

Sectors	Indicators
6. Financial market	
6.1 Actual volatility	- THB/USD exchange rate
	- SET index
6.2 Implied volatility	- THB/USD exchange rate
	- SET index
7. External stability	
7.1 International reserves	- Gross international reserves
	- Net international reserves
7.2 Liquidity	- Gross reserves to short-term debt
	- Gross reserves to import (months)
	- Current account balance to GDP
7.3 Debt serviceability	- Debt to GDP
	- Debt to exports of goods and services
	- Debt service ratio
	- External debt (billion USD)
	- Short-term (%)
	- Long-term (%)

Chapter 10

ADDRESSING RISKS AND PROMOTING FINANCIAL STABILITY: THE CASE OF VIETNAM

By
Le Trung Kien and Bui Van Hai[1]

1. Introduction

The recent global financial crisis has revived the debate as to whether or not and how central banks should take into account financial stability. To put it another way, should financial stability be an explicit central bank objective together with other objectives such as price stability and sustainable economic growth? Financial stability has been, and always will be, a fundamental objective of central banks. Indeed, central banks were established in part to serve as bulwarks against chronic episodes of financial instability and the attendant adverse consequences for the economy. At this basic level, a financial stability objective for central banks to safeguard the financial system seems entirely appropriate. The most fundamental rationale is, monetary stability and financial stability are just two sides of the same coin. Hence, the two main objectives of central banks relate to the maintenance of monetary and financial stability. While monetary stability simply means price stability, there is no straightforward definition for financial stability. It is notoriously difficult to define financial stability, which is why people find it more convenient to define financial instability. While we can spot the signs of financial instability, it is not so easy to discern the threats indicative of approaching instability. In order to monitor these threats, one has to have a clear idea what the elements contributing to financial stability are and to know when these could be at risk. For this purpose, this paper uses an explicit definition of financial stability. A concrete definition of financial stability is important given the direct links between financial stability and monetary policy.

The safeguarding of financial stability is a core task of a central bank. The mismanagement of monetary policy may negatively impact the financial market and financial institutions, and bring about risks to financial stability. On the other

1. The views expressed herein are those of the authors and do not necessarily reflect the views of the State Bank of Vietnam or The SEACEN Centre. Authors are Chief, Prudential Policy Department, Banking Supervision Agency and Economist, Banking Strategy Institute of the State Bank of Vietnam respectively.

hand, financial stability has significant implications to monetary policy, in that it contributes to long-run effectiveness of monetary policy. The 1997 Asian financial crisis and the 2007 global financial crisis have demonstrated the importance of financial stability to a national as well as global economy. The countries have to pay an extremely high cost for economic development in the absence of financial stability. For example, the Asian financial crisis in 1997 provided a very stark demonstration of the destructive effects of financial instability. In Indonesia alone, the estimates of the fiscal costs of re-capitalising the banking system are put at over 25% of GDP[2]. And to this we need to add the opportunity costs of lost output, investment and employment, as well as the social costs associated with instability, to even come close to a full welfare analysis of the crisis[3].

In Vietnam, like most developing countries, banks play a major part in the financial sector, accounting for around 75% of the total financial assets. Although the risks to global financial stability seem to ease as the economic recovery gained steam, policies are needed to reduce sovereign risks vulnerabilities, ensure a smooth de-leveraging process, and complete the regulatory agenda. Increasingly, in many countries, the central bank has a mandate to maintain and enhance their financial system stability. In contrast to price stability where central bank tenets are widely accepted, there is no consensus as to how best to define and preserve financial stability, partly because it cannot be readily modelled or forecasted. The purpose of this paper is to understand the financial stability framework in Vietnam, and identify the critical risks that the government needs to address to promote financial stability and achieve its goal of reaching parity with the leading ASEAN countries by 2020.

The remainder of this paper is structured as follows. In Section 2, we present the financial stability framework in Vietnam. We discuss the risks confronting Vietnam's financial stability in Section 3. The supporting tools for monitoring Vietnam's financial stability are presented in Section 4 to address how the State Bank of Vietnam (SBV) conducts micro- and macro-prudential surveillance in Vietnam. Then, the financial stability assessment in Section 5 describes some main features of Vietnam's current financial stability. Section 6 presents the recommendation and policy implications, and, Section 7, the conclusion.

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2. BIS Review 40/1999: Presentation by Governor of Bank Indonesia, Dr. Syrahil Sabirin, at the Indonesia Executive Circle Forum in Jakata on 7 April 1999.

3. Quantifying the cost of financial crises is very difficult. Welfare losses to the economy associated with a banking crisis are often proxied by losses in GDP. By this measure, for the five economies most seriously affected by the Asian financial crisis, the fall in GDP below trend is estimated at around 15%.

2. Financial Stability in Vietnam

This section lays down the current financial stability framework in Vietnam. Before addressing it in more detail, it seems useful at the outset to define financial stability. Schinasi (2004) defines financial stability in terms of its ability to facilitate and enhance economic processes, manage risks, and absorb shocks. Moreover, financial stability is considered a continuum: changeable over time and consistent with multiple combinations of the constituent elements of finance. Therefore, financial stability can be defined as a condition wherein the financial system is capable of withstanding shocks, reducing the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities.

Understood this way, the safeguarding of financial stability requires identification of the main sources of risks and vulnerabilities, such as inefficiencies in the allocation of financial resources from savers to investors and the mis-pricing or mismanagement of financial risks. This identification of risks and vulnerabilities is necessary because the monitoring of financial stability must be forward-looking. Inefficiencies in the allocation of capital or shortcomings in the pricing and management of risk can, if they lay the foundations for vulnerabilities, compromise future financial system stability, and therefore economic stability.

2.1 Overview of Vietnam's Financial Sector

The role and effectiveness of the banking system, securities and insurance companies are assessed in the broader context of Vietnam's impressive economic performance and instability in the global financial markets that have impact on the prospects of maintaining a sound and economically productive banking system.

2.1.1 Banking System

In Vietnam, the banking system has played a critical role in economic development. Historically, until 1988 Vietnam had operated under a "one-tier" system in which SBV - the country's central bank – undertook both central and commercial banking activities. The enactment of the Ordinance on SBV and the Ordinance on Banks, Credit Cooperatives and Finance Companies in May 1990 has transformed the banking industry into the "two-tier" system, with four state-owned commercial banks (SOCBs) established to take over SBV's commercial banking activities while the SBV is responsible for central banking functions.

Given the state-driven nature of the Vietnamese economy, up to recent economic reforms, these SOCBs traditionally focused on extending credits to the state-owned enterprise (SOE) sector.

Barriers to entry were reduced in 1991, opening the market to competition from both foreign players and joint-stock commercial banks (JSCBs). But severe competition among JSCBs eventually brought about a round of restructuring and merging, particularly during the period of 1999-2001. As a result, the number of the JSCBs fell from 51 to 34 by 2006. Since 2005, some JSCBs have begun to be listed in the stock market. The SOCBs have been undergoing restructuring since 2001 and some are now under equitisation process, being listed on the stock market.

The banking sector was further liberalised by the Vietnam – US Bilateral Trade Agreement and Commitments in the WTO framework. In addition to that, the provisions of banking services and products were subjected to relevant institutional and juridical forms.

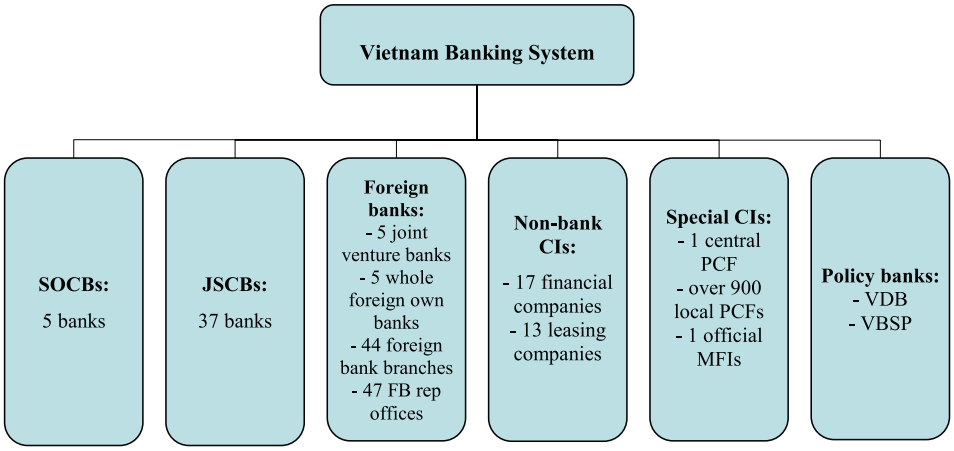
The Vietnamese banking sector is well populated with a diverse set of participants. The SOCBs and the predominantly private JSCBs are and have been the major participants in the market for many years in terms of lending. However, the greatest growth in the number of institutions has taken place amongst the foreign banks and financial companies. Several large well-respected foreign banks (e.g., HSBC, Standard Chartered Bank, ANZ Bank) have been permitted to open fully-owned banking facilities[4] and other foreign banks have established representative offices (FB Rep. Offices) or branches (FB branches) in Vietnam. Normally, foreign banks use a representative office as a first entry into in Vietnam to establish a full- service branch at a later date. With 47 representative offices now in place, there is potential for a further increase in foreign bank branch applications in the future. It remains to be seen whether these relatively new entries to the market will become significant competitors for the SOCB's and JSCB's locally or whether they will concentrate on serving the needs of their international client bases where they will clearly have a competitive advantage over the local Vietnamese banks. The system is contributed by the appearance of non-bank credit institutions (non-bank CIs) including finance companies and leasing companies and special credit institutions (special CIs) including People Credit Funds (PCF), micro-finance institutions (MFIs). In additional, the government established two policy banks, namely:

4. Including forms of 100% foreign-owned subsidiaries and branches.

Vietnam Bank for Social Policy (VBSP) in 1995 and Vietnam Development Bank (VBSP) in 2005. The number of non-bank CIs has grown sharply in the past five years. Under the current legislation, they are not permitted to accept deposits of less than one year maturity which limits their competitiveness on the fund mobilisation side while they can make short-, medium- and long-term loans, and can become much more competitive in that field, if they find the necessary funding.

The structure of Vietnam's banking system is shown in Figure 1 below.

Figure 1
Structure of Vietnam Banking System



The banking sector has played a major role in supporting the rapid growth of the Vietnam economy, showing average annual growth in loans and deposits of 35% and 32%, respectively, over the past seven years. However, deposit mobilisation has not kept pace with credit advances. Consequently, the sector shows a high system-wide loan-to-deposit ratio of 105% at the end of 2009. Vietnam has a higher loan-to-deposit ratio than the four comparative nations – Indonesia, Malaysia, Philippines, and Thailand. Within the sector itself, there has been a significant shift in the market shares of the SOCBs and the JSCBs in total bank deposits and lending.

Figure 2
Trend in Market Share of SOCBs and JSCBs

	2002	2003	2004	2005	2006	2007	2008	2009
Deposit Market Share								
SOCBs	81%	80%	78%	79%	70%	58%	56%	55%
JSCBs	10%	11%	13%	14%	22%	26%	28%	33%
Total	**91%**	**91%**	**91%**	**93%**	**92%**	**84%**	**84%**	**88%**
Lending Market Share								
SOCBs	74%	73%	75%	68%	63%	54%	52%	55%
JSCBs	15%	15%	14%	16%	27%	38%	42%	38%
Total	**89%**	**88%**	**89%**	**84%**	**90%**	**92%**	**94%**	**93%**

Source: Vina Capital, IFC, World Bank, extrapolation from available data.

As shown in the Figure 2, these two groups of participants accounting for roughly 90% of the banking sector activity. SOCBs' market share of loans has fallen from 74% in 2002 to 55% in 2009 despite the rapid growth in the economy and the banking sector. While there is some indication that, at least until 2009, the SOCBs concentrated on lending to (the relatively less dynamic) SOEs, and may have been more cautious as they positioned themselves for equitisation, JSCBs aggressively gained a bigger share of the market. The JSCB increases in market share in 2006 and 2007 were particularly striking. Some JSCBs reported loan growth of over 100% per annum during this period. At the end of 2009, JSCBs accounted for 38% of the market, up from 15% in 2002. Despite their faster loan growth, the more prudently managed JSCBs have balanced loan growth with deposit mobilisation, showing a 2009 loan-to-deposit ratio of 86% against the SOCBs at 92% (76% and 89%, respectively, in 2008)[5]. In addition to almost 44 FB branches, five foreign banks have now been licensed to conduct business through 100% foreign-owned capital subsidiaries in Vietnam[6]. There are some signs to suggest that the competitive environment will increase in the foreseeable future, particularly for resource mobilisation and lending to good quality customers.

5. Average for four largest SOCB's vs. 10 largest JSB's.

6. ANZ, HSBC, Standard Chartered, Shinhan and Hong Leong Bank Limited.

2.1.2 Stock Markets and Securities Companies

The stock market in Vietnam formally consists of the Ho Chi Minh City Stock Exchange (HOSE) established in July 2000, Hanoi Stock Exchange (HNX) launched in May 2005 and an over-the-counter market (UPCOM) opened in June 2009. At the opening trading time, only two stocks were traded on the HOSE. Up to now (December 2010), the number of companies listed on HOSE, HNX and UPCOM are about 640 companies and 109 companies, respectively.

The State Securities Commission (SSC), the Vietnamese stock market supervisor, was officially established in May 1996 as an authority directly under the Prime Minister (PM). Due to institutional limitation, in February 2004, the PM has decided to hand over the task of managing the SSC to the Ministry of Finance and assigned the SSC with more supervisory powers and responsibilities to develop the Vietnamese stock market. In terms of legislation, the Law on Security Trading was adopted in 2005, revised and supplemented in December 2010.

The HOSE, HNX and UPCOM are controlled by the SSC and almost funded by the State budget. Their responsibility are organising, executing and supervising all securities trading activities in the markets. Securities companies – majority dealers and brokers in stock market, are licensed by the SSC to provide the services of brokerage, securities trading, custody, portfolio management and investment advising for themselves and their investors. Presently, there are about 94 licensed securities companies with a range of sizes and businesses.

2.1.3 Insurance Companies

In Vietnam, the insurance industry first appeared in 1965 with the establishment of the Vietnam Insurance Corporation (BaoViet) as a state-owned monopoly insurer providing import-export cargo insurance and shipping insurance. As the result of significant changes in the new regulations on insurance business (Government Degree No. 100/CP) in 1993, Vietnam's insurance market was reformed by the market participation of all-sector insurers, namely: Ho Chi Minh Insurance Corporation (BaoMinh) in 1994, joint-stock insurance companies in 1995, joint-venture insurance companies in 1996, and 100% foreign-owned capital insurers in 1999.

In terms of the legal aspect, the Law on Insurance Business was enacted in December 2000 and revised in November 2010 and adopted by the National Assembly (NA). According to the Law on Insurance Business, the internationally

best practice-oriented legal/regulatory frameworks of insurance market are expected to be improved by the Ministry of Finance (MOF) – the insurance sector supervisor.

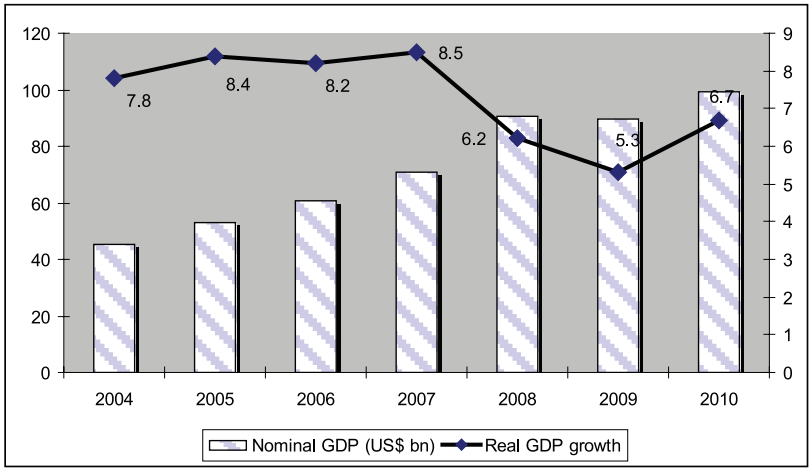
The development Vietnamese insurance market took off impressively in 2005 with the opening up of Vietnam's insurance market under its commitments with the World Trade Organisation (WTO) entry. In 2009, the market structure consists of 28 non-life insurance companies, 11 life insurers, one re-insurance company, and 10 insurance brokers. In 2009, the total direct premium of the insurance industry, in which life insurance and non-life insurance account, respectively, for about 51% and 49%, reached 2.2% of the GDP.

2.2 Recent Macroeconomic Developments

Since the introduction of the *DOI MOI* reform programme, Vietnam has made impressive socio-economic progress. Over the period 1996-2007 the economy grew at over 7% a year, ranking as one of the fastest and steadily growing countries in the world. However, unlike many other Southeast Asian countries, Vietnam faces a substantial resource gap to fund the investments needed for the country to continue to grow at the projected rate of 8-10% a year. To meet this challenge, Vietnam will have to mobilise additional funding and improve the efficiency of investment decision-making. The banking sector has a key role to play in both areas.

With Vietnam's entry to the WTO in early 2007, its economy grew rapidly. In 2007, GDP growth remained high at 8.5%, compared to 8.2 % in 2006. However, the year 2008 saw a slowing down of economic activities with the economic growth rate hitting only 6.2%, which reflected investors' fear of macroeconomic instability and global financial crisis and recession (Sanchita, et al., 2009). In the aftermath of the global financial crisis, Vietnam's economic growth remains relatively high and stable and it is one of the countries in East Asia Pacific that recorded the highest growth before the crisis and maintained that position after the crisis. Having achieved the real GDP growth rate of 5.3% in 2009, Vietnam's economy is expected to reach to 6.5% - 6.7% in 2010. Vietnam is known not only for its high economic growth rate, but also for its relatively stable trend. However, it also means that Vietnam's economic recovery will be lower than that of those countries that experienced negative growth rate in 2009.

Figure 3
Economic Performance for the Period 2004-2010



The achievement of impressive growth rate also goes together with some macroeconomic problems. The first signal of risks occurred in 2007 when Vietnam experienced a huge surge in capital inflows that had not been seen before its accession to WTO, triggering a credit boom and asset bubble. Since then, its economic environment has become worse encountering a series of external shocks, e.g., escalating commodity prices in 2008, global financial crisis in 2009, and debt crisis in Europe in 2010. Vietnam faced an unexpected situation chalking up the highest rate of inflation among East Asia Pacific countries, 6.52% in 2009 and 11.75% in 2010. In addition to high inflation, Vietnam is required to cope with currency pressure, plunge in foreign reserves, glooming stock exchanges, and high interest rate spreads compared to other countries in Asia that also have high economic growth. It makes Vietnam an exceptional case taking into account the other emerging market economies with stronger currencies, more capital inflows and increasing foreign reserves.

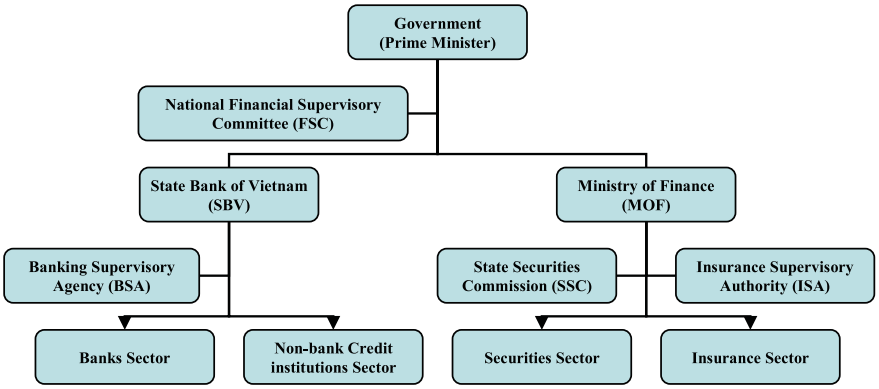
In fact, these macroeconomic developments have impacted significantly on financial stability in Vietnam, particularly for general and banking sector, and have created greater challenges for the financial regulatory authorities, especially the SBV.

2.3 Financial Regulatory Structure

In Vietnam, there is no single regulatory authority in charge of whole financial system (including banking, securities and insurance sectors). In fact, the financial

regulatory task is mandated to several of governmental organisations. The financial regulatory organisational structure is showed in Figure 4.

Figure 4
Vietnamese Financial Regulatory Structure



2.3.1 The State Bank of Vietnam (SBV)

In accordance with the Law on SBV issued in 2007 and revised in 2010, the SBV's main financial regulatory mandate consists of three pillars, namely: (i) Monetary stability; (ii) Financial stability; and (iii) Functioning payment systems. For the first pillar and the third one, the SBV exercises several distinct roles and responsibilities with respect to monetary policy, exchange rate policy and payment systems. Regarding the second pillar, the SBV concentrates on banking system safeguards and cooperates with the relevant authorities (MOF, NFSC, etc.) in maintaining financial stability.

Being the guardian of the safety and soundness of the banking system, the SBV carries out all of the four processes of banking supervision[7] through several of its departments and its nation-wide branch networks[8]. In order to enhance its banking supervision capacity, under the government authorisation, SBV formally established the Banking Supervisory Agency (BSA) in August 2009 as a specialised body under its control[9]. Being created from the consolidation of four

7. Four processes of banking supervision comprise: (i) Licensing, (ii) Regulation, (iii) Supervision and

   (iv) Liquidation.

8. SBV has 63 branches in every town and province in Vietnam.
9. BSA is a separate legal entity belonging to the SBV.

of SBV's separate bank supervision-related departments, namely, the Departments of Supervision Banks; Non-bank Financial Institutions (NBFIs); Credit Cooperatives; and Money-Laundering, BSA's major functions are licensing, regulating, on-site and off-site supervision and anti-money laundering over domestic and foreign banks, non-bank ICs, special ICs. This is a positive development in many respects. Importantly, the mandate of the BSA incorporates, for the first time, the concept of safety of the banking system. Among its operating principles, is the need to ensure that inspection of banks combine determinations regarding compliance with laws with the analysis of risks. This addition provides a good initial legal basis for the strengthening of a risk-based bank supervision approach. The organisational structure of BSA also moved SBV towards a more rational structure for banking supervision. The main departments are responsible for (i) On-site examination (divided between domestic and foreign banks); (ii) Off-site reporting and analysis; (iii) Development of policies and regulations; and (iv) Licensing.

2.3.2 Ministry of Finance (MOF)

Like many country treasuries, the MOF in Vietnam is a governmental agency which is in charge of public finance (including State budget, tax, fees and other revenues of the State budget, national reserve, State financial funds, financial investment, corporate finance and financial services); customs; accounting and auditing; insurance; securities; and conducting the ownership rights to the State's investment capital in enterprises according to the applicable laws. In 2008, the MOF assumed the roles of insurance sector regulator and supervisor.

2.3.3 National Financial Supervisory Committee (NFSC)

In March 2008, the PM issued a directive for the establishment of the National Financial Supervisory Committee (NFSC). The NFSC is to serve as the advisor to the PM in relation to the supervision of the financial market in all three fields – banking, securities and insurance. According to the directive, NFSC is the central agency to supervise the overall financial market and the implementation of international practices and standards by the inspection and supervisory authorities in banking, securities and insurance. Besides, NFSC conducts qualitative and quantitative analysis of the data and information of the financial market collected from the SBV and MOF for the purpose of predicting and warning on the safety of the financial-banking system as well as risks for the financial market. The NFSC also provides the PM proposals on prudential regulations for the financial market, if necessary, and works with the relevant

agencies in submitting to the PM strategies and orientations on the development of this market.

2.4 Regulations and International Compliance

Vietnam is a bank-based economy with the banking sector contributing a dominant portion of the GDP. Banking regulation and supervision plays a very important role in promoting financial stability. Responding to the pressures of international economic integration since 2005 and the experience lessons learned from the 1997 Asian banking crisis and the 2007 global financial crisis, the Vietnamese financial regulatory authorities have made every effort to improve the legal frameworks governing the financial sector (banking, securities and insurance) in line with international practices and Vietnamese context. This trend was actively supported by the IMF and the World Bank through various technical assistance programmes.

As part of SBV's strategic policies for maintaining financial stability, SBV has made great strides in improving its institutional framework governing the banking system towards international standards in accordance with a proposed roadmap. On the banking side, the current prudential regulations and standards have been aligned step by step closer to some of main international practices, namely: (i) The Basle Capital Adequacy Accord (Basle II and Basle III), the Basle Liquidity frameworks and Basle prudential principles for the regulations on prudential ratios; (ii) the OECD Corporate Governance Principles, (iii) the IAS and IFRS for the accounting and disclosure rules; and (iv) Basle internal control and audit rules. In addition, the Basel's 25 Effective Banking Supervision Core principles have been gradually adopted by the SBV in its attempts to enhance the legal/regulatory frameworks.

In terms of prudential regulations, in the 1990s, SBV issued the asset classification and provisioning rules as well as the regulations on prudential ratios (capital adequacy, liquidity, short-term funding for middle/ long-term lending, single-borrower limit, related parties lending). These were periodically revised and aligned closer to international standards and they were updated and strengthened in response to the domestic and global developments taking into account the new risks. In particular, the regulations on capital adequacy ratio based on the 1989 Basle Capital Accord (Basle I) for credit risks was issued in May 2005 and revised in May 2010 for the calculation of capital on consolidated basis. Under the SBV plan, the Basle II will be fully adopted by 2015 as Vietnam meets the required conditions.

To strengthen market discipline, a new regulation on the financial statements of banks (Decision 16) which basically consisted of the International Financial Report Standards (IFRS) was issued by the SBV in 2009. Over the last five years, the Vietnam Accounting Standards (VAS) has been completed to keep abreast of the International Accounting Standards (IAS), except IAS 39 on Financial Assets due to the under-developed Vietnamese financial markets. In terms of corporate governance, the OECD's best corporate governance principles have been mostly incorporated into the new Law on Credit Institutions, which have been effective since January 2010.

In the securities sector, under its stock market development strategies, the MOF has developed a roadmap for the adoption of the securities market management principle recommended by the International Organisation of Securities Committee (IOSCO) with regard to these areas: management of issuing stocks, collective investment funds, immediate market organisations and secondary markets. For stock business and service providers, the best corporate governance practices and generally accepted code of professional ethics in stock business are adopted step by step to enhance the standards of internal control, risk management and operational process.

The MOF has already developed a plan for improving the legal framework of corporate governance, market management and transparency, service and product standards in line with international practices.

3. Risks Confronting the Vietnamese Financial Stability

Over the past 10 years, we can confidently say that Vietnam has benefitted from the lessons learned from the financial crises and economic downturns. It is increasingly aware how important it is to have a sound financial system that is resilient to potential shocks and risks. The risks to Vietnam financial stability remain as significant concerns, among them, are credit risk, liquidity risk, market risks, and operational risk.

3.1 Credit Risk

Credit risk is a main source of risk to the banking system because lending is a dominant business of Vietnamese banks. In addition, inappropriate credit risk management coupled with low productivity of major borrowers, like SOEs, have led to low credit quality and high non-performing loans (NPLs) in Vietnamese banks. The high credit growth of the banking sector, on average of

27% per year over the past 10 years, even up to 47% in some years, has partly contributed to emergence of significant credit risks among other risks in the Vietnamese banking system. The under-developed credit information infrastructure and gap between the VAS and the IAS standards are also great challenges for Vietnamese banks in mitigating their credit risk.

In fact, the problems of credit concentration, related parties lending and insufficient loan loss provision due to limited financial capacity of some Vietnamese banks have increased the vulnerability of the Vietnamese banking system in the past as well as future.

Recently, the SBV has revised its regulations on assets classification. More importantly, banks are now allowed and encouraged to use their own internal credit rating systems (ICRS) to classify their loans. The ICRSs developed by the banks themselves which are based on guidance provided by the SBV must be submitted to SBV for reviews and recommendations. One of the goals of this change is to reduce bank reliance on quantitative data, e.g., days past due, and assign more weights to qualitative analysis of borrower repayment capacity, especially corporate borrowers. The revision, designed to improve risk management processes and analysis at the banks, represents a big step forward. It requires banks to have up-to-date information about their customers, sectors of the economy, and market conditions.

In addition, in the wake of the mid-2008 macroeconomic instability which spilled over into the banking sector, the SBV reacted quickly to impose strict caps on lending for securities and real estate investments.

3.2 Liquidity Risk

The rapid credit growth, credit concentration in the property and securities sector, coupled with the large maturity mismatch and ineffective liquidity risk management, are the main internal causes of high liquidity risks of the Vietnamese banking system. In the past five years, the average loan-to-deposit ratio (LDR) of the Vietnamese banking system is 105%, of which the LDR of JSCB is highest at about 112%. The under-developed interbank market is also a challenge for the Vietnamese banks in the event they are required to deal with a liquidity problem.

The sudden tightening of monetary policy by the SBV in tackling high inflation in early 2008 and late-2010 caused some banks, particularly small- and medium-sized banks, to experience liquidity difficulties. As a result, the SBV was called

to provide emergency liquidity support to such banks through its re-financing programmes.

The Basle Committee's adoption of the new International Liquidity Risk Frameworks after the 2007 global financial crisis is a good example of the increased importance of liquidity risks to financial stability. As part of its banking system development strategies[10], the SBV gradually strengthened the regulations governing bank liquidity in line with the best international standards, such as issuance of the guidelines on minimum liquidity risk management standards and application of higher liquidity prudential ratio for banks.

3.3 Market Risks

For the past five years, the total asset value of the Vietnamese banks has been significantly impacted by the volatility of interest rates, foreign exchange rates and equity price. Market risks[11] have emerged as a significant risk to the Vietnamese banking system. The limited market risk awareness and lack of market risk management experience of Vietnamese banks are main causes for the emergence of market risks. In recent times, the Vietnamese banks have paid more attention to market risk management, but that may not be adequate due to the rapid and unforeseen changes in the stock market and money market landscape in Vietnam. Under the prevailing regulations on the capital adequacy requirement, no capital charge for market risks has been made by the Vietnamese banking system, rendering it more vulnerable to interest, foreign exchange and price shocks.

With respect to the asset structure of the Vietnam banking system, its financial assets amounted to about 90% of total assets, of which 57% of loans and advances were adversely affected by the property market and stock market bubble in 2007. The turbulent change in interest rates resulting from inflation rate movement and market expectation in 2007 and 2010 threatened Vietnamese financial stability. The managed floating rate scheme employed by the SBV brought some stability in the foreign exchange rate in the last five years. However, the 2007 global financial crisis, aftermath of the US dollar depreciation, and the central banks' responses have created significant pressure on Vietnam's foreign exchange rate and given rise to potential high market risks for the Vietnamese banking system.

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10. It is known as "The Proposal on the Development of the Vietnam Banking Sector towards 2010 and Orientation Towards 2020."

11. Market risks include (i) Interest rate risks; (ii) Foreign exchange rate risks; and (iii) Equity price risks.

3.4 Operation Risks

Under Vietnam's commitments to international economic integration[12], competition has rapidly increased in the Vietnamese financial market since 2005, with the appearance of more and more foreign players in various forms of commercial presence. To cope with the high competitive pressure, the Vietnamese banks have aggressively introduced new and high-tech banking facilities and continuously expanded their business network. This trend, coupled with insufficient capital investments for operational risks due to limited financial capability, and inefficient internal control and audit system due to the lack of practical experiences, have resulted in a significant increase in operational risks to the Vietnamese banking system in recent times. As a result, the Vietnamese banking system has become more vulnerable to external attacks (hackers, ATM robbery, credit card defraud, etc.), natural disasters, staff abuse, and so on. Likewise with market risks, the bank capital adequacy requirement does not include capital charge for operational risks. The resilience of the Vietnamese banking system is reduced by the increase in operational risks.

3.5 Crisis Prevention

Due to the absence of a single financial stability framework in Vietnam, the prevention of financial crisis is carried out by the relevant governmental bodies (SBV, MOF and NFSC) at different levels and sectors. Given its mandate and the historical dominance of the banking industry, the SBV plays a more crucial role in financial crisis prevention than the other two regulatory authorities. In order to limit the probability of financial crisis, under the Proposal on the Development of the Vietnam Banking Sector Towards 2010 and Orientation Towards 2020, the SBV focuses on enhancing its banking regulatory and supervisory capacity.

On the supervisory side, the establishment of the BSA in 2009 involving the merger of four departments underscores the SBV's efforts in strengthening its banking supervisory capacity. Given its mandate, the BSA has played an important and unique role as a banking regulatory and supervisory agency in potential crisis prevention in the banking sector. However, there are still several shortcomings of its organisation and operation which need to be resolved, notably, overlapping banking supervisory responsibility among the BSA, SBV branches

12. Vietnam's financial market-opening commitments are contained in the two milestone agreements, namely, the 2001 Vietnam – US Trade Agreement and the 2005 WTO Entry Agreement.

and DIV; lack of coordination within the BSA divisions and cooperation between BSA, SBV departments, and other relevant authorities; non-existence of a leading unit to take charge of macro-prudential surveillance; non-adoption of risk-based supervisory approach and consolidated supervision; shortage of highly-skilled human resource; backwardness of IT infrastructure; and lack of information and database.

On the market player side, the SBV uses micro-prudential instruments at different levels for different groups of CIs, like banks, non-bank CIs and special CIs, to limit the probability of individual CI failure (idiosyncratic risks) and to protect depositors. These instruments consist of prudential regulations (prudential requirements, rules on corporate governance, guidelines on minimum risk management requirement, principles on anti-money laundering transactions) and on-site and off-site banking supervision of individual CIs.

As for the prudential regulatory framework, as above mentioned, SBV has proposed a plan for the improvement of the current prudential regulations and standards to systematically comply with the Basle II and Basle III, the Basle Liquidity Frameworks and the Basle Prudential Principles for the regulation of prudential ratios (capital adequacy, liquidity, short-term funding for middle/ long term lending, single borrower limit, related parties lending); apply the OECD Corporate Governance Principles for the regulations on bank organisation and operation; adopt the IAS and IFRS for the accounting and disclosure rules; and employ the Basle internal control and audit rules for its guidelines on internal control and audit for banks.

Regarding micro-prudential supervision, the BSA is in the process of enhancing its on-site and off-site banking supervisory capacity in the following areas: movement towards risk-based supervisory approaches, compliance with 25 Basle Effective Banking Supervision Core Principles, and upgrading of its database and IT infrastructure.

In fact, over five last years the SBV has achieved some positive results in strengthening its micro-prudential supervisory capability while its macro-prudential supervision remains in the development stage.

3.6 Crisis Resolution

3.6.1 Improving International and Domestic Coordination and Cooperation

The ultimate objective of crisis resolution is to minimise the negative impacts of the crisis and avoid systemic contagion to the whole financial system. In order to resolve a financial crisis successfully, it is necessary to have close coordination and cooperation between the related parties and stakeholders, including the authorities, financial institutions, depositors and financial service users. This cooperation could involve the parties in different ways, for instance, information sharing, experience exchange, collaboration, and so on. Within the SBV, the BSA and relevant SBV departments have the responsibility of working together in handling the problems arising from a financial crisis.

In the Vietnamese financial regulatory structure mentioned above, there are a number of governmental bodies involved in the maintenance of financial stability and handling of banking and financial crisis. At the national level, on case-by-case basis, the government takes the lead in directing the SBV, MOF, DIV and other relevant bodies working together to formulate the necessary resolutions, and then makes the final decisions for coping with the crisis.

At the regional and international level, the cooperation between home-country supervisor and host-country supervisor as well as group of related country supervisors have to be established to deal with cross-border crisis. This is wholly appropriate for Vietnam in the light of its experience from the recent crisis. In acknowledging the importance of this, the SBV has mandated the Memorandum of Understanding (MOU) on supervisory cooperation between the SVB and home-country supervisor, signed by two parties, as one of the compulsory conditions for approval of foreign banks to entry the Vietnamese market.

3.6.2 Establishing Financial Safety Net and Crisis Management Protocol

Crisis management includes crisis prevention and crisis resolution. To date, the SBV does not have an official crisis management protocol. The financial safety net in Vietnam consists of the following components: (i) Regulation and supervision (ii) Lender of last resort; (iii) Dealing with troubled banks; and (iv) Deposit insurance.

(i) *Regulation and Supervision*: As a part of above mentioned crisis prevention, this is implemented in compliance with the international practices, such as the 23 Basle CPs. In addition, functional independence is a prerequisite of effective banking supervision. At present, the SBV/BSA supervises the banking system in a relatively independent manner and it focuses on micro-prudential supervision rather than macro-prudential supervision.

(ii) *Lender of Last Resort:* The SBV functions as lender of last resort to provide liquidity assistance in the event of an emergency bank-run, market liquidity shortage, or when individual banks are faced with a liquidity shortage. The SBV has employed this facility in a timely way to support some small banks having liquidity shortage in the late-2008. The SBV adopted the Scheme for Dealing with Status of Bank Run in which one of SBV's resolutions is providing emergency liquidity as the lender of last resort.

(iii) *Dealing with Troubled Bank*: In accordance with the Law on SBV, a bank having financial problem (loss over 50% capital, insolvency, etc.) will be "specially controlled" by the SBV. In this case, the SBV has right to assign a new management team to take over the management of the bank and to extend a "special loan" to support the bank. As above-mentioned, under the Scheme for Dealing with Status of Bank-Run, the SBV is authorised to conduct a series of resolutions for handling the bank-run.

(iv) *Deposit Insurance*: The Deposit Insurance of Vietnam (DIV), established since 2000 as a governmental body, has the mandate to protect depositors, contribute to the stability of banks and ensure the safe and sound development of the banking industry. Current DIV policies and practices appear to be generally in line with international best practices. The DIV has also made a concerted effort to educate the public about deposit insurance. However, due to its limited financial capacity, DIV is only able to serve small financial institutions (e.g. People Credit Funds). Although the legal framework specifies that the SBV and the DIV coordinate the supervisory practices and problem bank issues, there is room for the improvement of information flow and for a more efficient division of labour in the performance of bank inspections. Furthermore, given that there are growing concerns about the solvency of a number of small banks in Vietnam, the DIV should continue to improve its early warning system as well as its pay-out procedures to be able to deal with a larger number of claims than at past. As a part of the plan promoting the financial safety net, the government authorised the SBV to revise and supplement the legal framework on DIV to resolve the DIV's current

organisational and operational shortcomings and to improve the effectiveness of the DIV in protecting depositors.

4. Supporting Tools for Monitoring Financial Stability

In order to effectively promote financial stability, one of most important requirements is identifying potential risks and imbalances which could cause financial instability or crisis. The banking supervisors developed a number of statistical and analytical tools for monitoring and measuring such risks and imbalances in term of the probability, severity and rapidity of occurrence. These tools include the financial stability indicators consisting of the financial stability index, macro- and micro-prudential indicators, rating system, stress test and financial soundness index, early warning indicators, and a series of call and periodic financial stability reports.

At present, the supporting tools such as financial stability index, leading indicators, stress testing, forward-looking and early warning data and financial stability reports are not available in Vietnam. In order to measure financial stability, SBV has set up the Statistic and Forecasting Department in 2007 as a data slaver to assess and provide forecasts on the impacts of macroeconomic conditions on the financial system, particularly in the banking area. There are a number of macroeconomic indicators deployed, as shown in Figure 5, even though they are still in the very early stage of application.

Figure 5
Macroeconomic Indicators

Macroeconomic indicators	*Sub-indicators*	*Report frequency*
Economic Growth	GDP	Monthly
Balance of Payment	Current account deficit FX reserve adequacy External debt Composition and maturities of capital flows	Monthly/ Quarterly
Inflation	Volatility of Inflation Volatility of CPI	Monthly
Interest and exchange rate	Volatility of interest and exchange rates Basic interest rate Interbank market interest rates	Monthly
Other factors	Government resources to banking system	Monthly

Regarding macro-prudential supervision, the macro-prudential instruments deployed by SBV are still in simple forms. They are shown in the Figure 6 below.

Figure 6
Macro-prudential Instruments

Type of instrument	*Description*
Measures targeting credit growth	
Credit growth caps	In normal period, there are no limits but SBV sets up targetted aggregate credit growth cap to direct the banks. SBV will impose the aggregate/sectoral credit growth cap, if necessary
Loan-to-Value Ratios	Encourage banks adopt LTV ratio ≤ 70% for mortgage loan
Foreign currency restriction	Foreign currency lending to the borrower who has no foreign currency inflow is prohibited
Measures targeting size and composition of bank's balance sheet	
Capital adequacy Requirement	Minimum CAR is 9% for credit risks only No capital charge for market risks and operational risks Property and securities loan has 250% risk-weight ratio.
Liquidity risks	Loan-to-deposit limits ≥ 85%, Liquid assets/total liability ≤ 15% 7 day cash inflow/ 7 day cash outflow ≥ 100%
Currency risks	Open currency position ≤ 30% of capital

As for micro-prudential indicators, under the SBV's mandate, the BSA monitors the individual bank and non-bank CI through off-site and on-site supervision. The BSA has adopted the CAMELS rating system for the evaluation of individual CI's risks and performance in terms of Capital adequacy (C), Assets quality (A), Management (M), Earnings (E) and liquidity (L). In the near future, the SBV will be including Sensitivity with market (S) in its rating system. Based on these assessments, a bank is rated into four ranks from A (Strong); B (Satisfactory); C (Marginal); and D (Unsatisfactory). In order to have a better rating system, the BSA is presently drafting a new guideline to be issued in 2011, incorporating the updated post-financial crisis international practices. Figure 7 presents the micro-prudential indicators used by the SBV.

Figure 7
Micro-prudential Indicators

Micro prudential indicators	*Sub-indicators*	*Report frequency*
Capital Adequacy	Capital Adequacy ratio Tier 1 Capital/risks-weighted Assets	Monthly
Assets	Fixed assets/capital Large exposures, related parties loans NPLs/Total Assets Loan loss Provisioning/Total loan Investments/capital Investments ≥ 10% of invested entity capital	Monthly/ Quarterly
Management	Awareness and supports of BOD, Efficiency of BOC Quality and compliance of MB Quality of Internal control system	On-site examination (Yearly plan or event occurred)
Earnings	ROA ROE Interest income/total income	Semi-annually
Liquidity	Loan to deposit limits Liquid assets/total liability 7-days cash inflow/7-days cash outflow Short-term funding for medium- and long-term lending	Monthly

5. Assessing Financial System Stability

The banking sector is predominant in the Vietnamese financial system while the securities and insurance sectors remain small but rapidly expanding. The stability of the financial system depends significantly on the stability of the banking system. However, it does not mean it is easier to assess financial stability in Vietnam than in other countries where the financial system is more developed.

Assessing financial stability requires a clear definition of financial stability and analytical tools to measure it. However, financial stability is defined in different ways. The IMF's definition of financial stability focuses on the ability of the financial system to facilitate and enhance economic progress and to limit and

deal with the emergence of risks before they threaten the financial system. Sinclair (2001) and Mac Farlance (1999) simply define it as an avoidance of financial crisis. Borio and Drehmann (2009) discuss concepts of financial instability as a situation whereby normal-sized shocks emanating from either the real sector or financial sector to the financial system are sufficient to produce financial crisis or distress. In Vietnam, there is no official definition of financial stability at this point of time due to the absence of a financial stability framework.

The analytical tools required to measure financial stability must take into account the complex interlinks between financial institutions & markets and infrastructure; real sector, monetary sector, and fiscal sector; and the domestic economy and international economy. These tools require comprehensive, reliable and timely data and information. The recent financial crisis has shown that the measurement of financial stability is a real challenge for many countries, even developed ones having a long history of financial system development. The task is harder for SBV, Vietnam, because of the inadequacy of information infrastructure and shortage of qualified and professional IT and other human resources. However, given the technical assistance programmes of the IMF and other international organisations, the SBV is in process of developing the capability of assessing financial stability in Vietnam, even though this may take a few years.

To prepare the financial stability report, the SBV has delegated to the Banking Strategy Institute, a leading unit of the SBV, the task of proposing a financial stability report format in line with the format of IMF's financial stability report and feasible for SBV's application to Vietnam.

Although the financial stability report is not yet available, the banking system stability in Vietnam capture may these main features:

(i) Despite the absence of a major crisis, the banking system has faced liquidity shocks in late-2008 and interest rate shocks in late-2010.
(ii) The banking system chalked impressive developments in terms of earnings and profitability, but it remains vulnerable due to high loan growth and low capital base.
(iii) Asset quality is negatively influenced by low productivity of real sector, e.g., Vinashin's collapse in 2010, real estate bubbles in 2008 and 2009, and securities bubble in 2007.
(iv) The banking system resilience is increasingly tested by the impact of external forces from the deepening and widening of international economic integration.
(v) The regulatory and information gap may cause some potential risks and imbalances to be overlooked.

6. Policy Implications and Recommendations

The global crisis, which originally emerged as a financial system crisis, was soon transformed into a crisis impacting the real economy. Due to extensive integration of financial markets, as a result of the presence of financial institutions engaging in cross-border activities and the manifold inter-institutional exposures, the contagion of a financial system crisis can spread rapidly across many countries. A financial system crisis may hit the real sectors of the economy, causing the economy to swing into a self-reinforcing, downward spiral. There are a number of policy implications that need to be raised, including:

6.1 SBV's Primary Role in Banking as Guardian of Soundness of the System

- Give the SBV greater operational independence to make decisions relating to the banking sector. Central banks must manage the inherent tension between the objectives of promoting the development of the economy and protecting the soundness of the banking institutions, but during the period of economic stress, the SBV will need to give priority to ensuring the safety of the banking system.

- Clarify how the SBV should operate and interact with other governmental bodies concerned with banking issues, including ministries, other ministerial level bodies and People's Committees at both central and local level.

- Give the SBV sole authority to make decisions (consistent with the laws) related to the issuance and withdrawal of licenses, as well as changes of ownership through acquisition, dissolution or mergers. Licensing decisions are critical to ensuring a safe and sound system. Going forward, the SBV will give greater focus on ownership issues in licensing procedures, applying "fit and proper" tests to owners and senior bank management and changes of control.

6.2 Implement a Holistic Risk-based Approach to Supervision

SBV will give priority to managing banking system risks through the BSA by adopting and implementing a holistic risk-based approach to supervision in line with the Basel Core Principle Standards. This will include:

- Adopting and publishing a mission statement based on the 25 Core Principles for Effective Banking Supervision to communicate the priority that the SBV

gives to this new approach to supervision. It will incorporate the BIS definition of banking supervision as covering the full range of activities used by regulatory authorities to promote a sound banking system rather than only data collection and analysis to monitor compliance with laws/regulations.

- Continuing to refine prudential regulations to incorporate the fundamental principles of Basel II and moving towards the implementation of Basel II and modifications under Basel III.

- Improving the effectiveness of the supervision of individual banks and the system generally by more closely integrating off-site analysis and on-site inspection using a consistent and comprehensive set of criteria defined in the CAMELS concept (Capital, Assets, Management, Earnings, Liquidity and Sensitivity to Market Risks).

- Implementing fully the consolidated supervision of banking conglomerates (commercial banks and their financial and non-financial subsidiaries and affiliates) paying particular attention to connected lending and large exposure regulations.

- Defining clear criteria and processes for SBV's interventions in problematic banks and decisions regarding bankruptcy and liquidation in order to signal to the banks that they must comply with prudential regulatory requirements and take prompt action to correct problems that arise.

- BSA's prudential regulation department will evaluate whether differential regulatory requirements for commercial banks and financial institutions are justified and the risks that different requirements may bring out.

6.3 Improve Co-ordination between Regulatory Authorities

To implement effective risk-based supervision, it is important that all institutions and agencies are involved in banking supervision and the identification and management of risks in the financial sector are communicated regularly through both formal and informal channels. SBV's approaches are:

- The necessity to establish better communication among different departments within SBV, as well as between SBV and other institutions that may have a role in monitoring the financial market. This communication creates optimal conditions for the clear identification and full assessment of the most important issues that have affected and are expected to affect financial stability during

the periods under consideration. Ultimately, a good level of communication allows inter-institutional cooperation in addressing the concerns that may jeopardise financial stability;

- The need to have a balanced content of the Financial Stability Report. This report attempts to clearly identify the underlying risks to financial stability, not only those created as a result of the financial system's activity, but also those stemming from its interaction with the surrounding economic environment;

- Establishing explicit information-sharing policies and procedures and on-site inspection planning and scheduling between BSA and SBV branches must be documented in Memoranda of Understandings.

- Setting up a high level inter-agency working group, including participants from MOF, SSC, SBV, BSA and DIV to promote regular coordination and information sharing about banking sector developments, the activities of banking/financial sector conglomerates, and the co-ordination of supervision of the banking sector and capital markets.

- Setting up a senior management level working group to make recommendations on practical steps to strengthen cooperation between DIV and BSA with a view to eliminating overlap and duplication in reporting requirements and on-site inspections of banks, and to provide joint training for DIV/BSA/SBV staff.

6.4 Micro- and Macro-prudential Frameworks

A framework for macro-prudential analysis needs to be developed. It is necessary to take a system-wide approach to assess the financial system and economic conditions rather than focus alone on the health of individual institutions, markets and products. Although individual financial institutions and products may appear normal to regulatory agencies and market participants, there are many issues that may create large systemic vulnerabilities. They are, among others, savings-investment imbalances, changing patterns of maturity transformation, rapid credit growth, etc. Accordingly, we need to be in a much better position to understand and address trends in credit growth, in system-wide leverage and maturity transformation, and in the inter-linkages within the financial system, to identify and constrain emerging risks. For this, we require additional system-wide prudential as well as other tools.

A range of indicators to be collected and monitored should be identified. Among them are GDP, inflation, monetary aggregates, the current account balance, external debt, international reserves, and exchange rate. In doing so, a macro-prudential supervisory unit must possess the capacity to collect and analyse data ranging from a firm level to global one in order to detect risks to financial system before they develop into full scale crises. This unit will monitor and advise on market developments and their implications for regulatory policy in meeting regulatory standards. Once the unit has identified such risks, it must have the ability to employ macroeconomic policy instruments, e.g., countercyclical capital requirements, which will reduce threats to financial stability.

It is essential to create the prudential tools, regulatory set-ups and policy tools required to better constrain system-wide risks, including generating the transparency needed for the authorities and markets to be better informed about the risks to the system. This is the focus of much of the reform agenda. These changes do of course need to be implemented at national level. But there is work internationally to generate the tools and policies needed, to promote coherence in implementation and to conduct the monitoring that is required.

Aggregated micro-prudential indicators building on the off-site supervision of commercial banks, include indicators of general performance (trends in total assets, loans, and deposits); safety indicators (capital adequacy, asset quality, and credit concentration); liquidity indicators (liquidity of assets, excess reserves, and liquidity of domestic and foreign currency liabilities); earning indicators (return on equity and assets); and overall control indicators (loan to deposit ratios, proportion of interbank financing, and proportion of offshore financing).

Last but not least, it is necessary to obtain complete information from all the sectors of the economy and produce complete, reliable and timely statistics, and to quantify systemic risk. This objective is obviously not easy, but must be ongoing and begin from the easiest and concrete approaches.

7. Conclusion

Financial stability contributes to the health of financial systems, efficient allocation of resources and effective management and distribution of risks in the economy. Maintaining and safeguarding financial stability is a must for authorities in every country in terms of not only having a sound national financial system but also one that is contributing to the overall soundness of the world financial markets. It is essential for policy makers to be aware of the dynamics in the financial system, detect risks, share views with financial market participants to

increase their awareness of risks, and to act accordingly. As a result, policy coordination between institutions on international and national levels will certainly be the most important aspects of this dynamic process.

Financial stability is and always will be of vital interest to central banks and is certainly an appropriate objective for central banks. There are some complexities, however, in determining just how financial stability considerations should be taken into account in reaching policy decisions. In this context, it is useful to view financial stability in terms of its impact on the economic outlook, including its effects on the forecasts for key economic variables and the risks to those forecasts. But in today's globally integrated markets, it is more important than ever for central banks and other financial authorities to share information, to communicate about crisis prevention measures, and to recognise a common interest in effective crisis management actions. In this vein, the work being done in various forums to develop a deeper understanding of different dimensions of financial instability and to foster important structural improvements in areas such as payment systems, banking and securities market regulations, and accounting standards is especially important and relevant.

Abbreviations

ASEAN	Association of Southeast Asian Nations
BIS	Bank for International Settlements
BSA	Banking Supervisory Agency
DIV	Depositor Insurance of Vietnam
FB	Foreign bank
GDP	Gross domestic production
HNX	Hanoi Stock Exchange
HOSE	Ho Chi Minh Stock Exchange
IAS	International Accounting Standards
IFRS	International Financial Report Standards
ICRS	Internal credit rating system
IOSCO	International Organization of Securities Committee
LDR	Loan-to-deposit ratio
MFI	Microfinance institution
MOF	Ministry of Finance
NFSC	National Financial Supervisory Committee
OECD	Organisation for European Economic Co-operation
SBV	State Bank of Vietnam
SOCB	State-owned commercial bank
SOE	State-owned enterprise
SSC	State Securities Commission
JSCB	Joint stock banks
PCF	People credit fund
NA	National Assembly
NBFI	Non-bank financial institution
UPCOM	OTC Exchange
VAS	Vietnam Accounting Standards
VBSP	Vietnam Bank for Social Policy
VBSP	Vietnam Development Bank

References

BIS, (1999), BIS Review 40/1999: Presentation by Governor of Bank Indonesia, Dr. Syrahil Sabirin, at the Indonesia Executive Circle Forum in Jakarta on 07 April 1999.

Sanchita, et al., (2009), "Vietnam: Further Challenges in 2009", ASEAN Economic Bulletin, April, 2009.

Schinasi, Garry J., (2004), "Defining Financial Stability", *IMF Working Papers* 04/187, International Monetary Fund.

World Bank, (2010), "Global Economic Prospects 2010", January 2010.